

A COMPARATIVE STUDY OF FLOW OF INSTITUTIONAL CREDIT TO AGRICULTURAL AND NON-AGRICULTURAL SECTORS IN NORTH KARNATAKA

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INTRODUCTION

Institutional credit is assumed to play a pivotal role in changing the composition and distribution of production in favour of deficit producers. It has been conceived as one of the critical inputs for sustainable economic growth and development. It capitalizes farmers and producers to undertake new investments and adopt new technologies. Credit has undoubtedly emerged as one of the most influential variables in the modern economy, despite increasing importance of other financial instruments in technologically advanced and interconnected financial markets. There is strong cross-country evidence that large imbalances in credit flows have been one of the most important causal factors behind the recurrent crises since the Great Depression of the 1930s.

The importance of credit is further reinforced by the unique role of Indian agriculture in the macroeconomic framework along with its significant role in poverty alleviation. Realizing the importance of agricultural credit in fostering agricultural growth and development, the emphasis on the institutional framework for agricultural credit has been emphasized since the beginning of planned development era in India.

1.1 Evolution of Indian financial system

The financial system comprises financial institutions, financial markets, financial instruments and services. The Indian financial system is characterized by its two major segments which are an organized sector and a traditional sector that is also known as informal credit market. Financial intermediation in the organized sector is conducted by a large number of financial institutions which business organizations are providing financial services to the community. The activities of different financial institutions may be either specialized or they may overlap. Financial institutions can also be classified as banking and non-banking sectors. The Reserve Bank of India (RBI) as the main regulator of credit is the apex institution in the financial system.

The banking system in India consists of commercial banks and co-operative banks. Commercial banks, which also include foreign banks and private banks, are the predominant segment. Cooperative banks, which are organized on the 'unit' banking principle, are mainly rural based although there are urban cooperative banks also operating in urban areas. Additionally NBFIs, government owned post offices also mobilize deposits, but they do not undertake lending activity. Besides, there is an extensive network of all India and State development banks catering to agriculture, industry, housing and exports. Also there exists several financial institutions like UTI, LIC, GIC and its subsidiaries, mutual funds, investment and loan companies and equipment leasing and hire purchase companies, that are engaged in mobilizing resources and providing financial services in medium as well as long-term investment. The National Bank of Agriculture and Rural Development (NABARD), the Industrial Development Bank of India (IDBI), Export Import Bank (Exim bank) and the National Housing Bank (NHB) have been established to serve as apex banks in their specific areas of responsibility and concern. The three important term-lending institutions namely IDBI, ICICI and IFCL dominate the term-lending market and provide medium and long term financial assistance to corporate sector.

The banking system in India is characterized by excessive concentration of business in a small number of scheduled public sector banks. Excluding Regional Rural Banks (RRBs), mere 27 banks are now operating a vast network of about 45,000 branches. The concentration of banking business has been brought about through the policy of mergers and consolidation of banks and their Government ownership. This fact enables them to be dominant in not only the deposit and credit markets, but allows them to play important role in money and capital markets. Financial intermediation in India grew after independence and more rapidly after the nationalizations of major 14 banks in 1969. By the end of eighties, the Indian financial sector had registered tremendous growth in volume and variety. This included the stock market, mutual funds, non-banking finance companies and other institutions. But the country's financial system was saddled with an inefficient and financially unsound banking sector. Some of the reasons for this are high reserve requirements, administrated interest rates, directed credit, poor supervision, lack of competition and political interference.

1.1.1 Financial sector reforms

Financial sector reforms have long been regarded as an important part of the agenda for policy reform in developing countries. Traditionally, this was because they were expected to increase the efficiency of resource mobilization and allocation in the real economy which in turn was expected to generate higher rates of growth. The initiation of financial reforms in the country during the early

1990s was to a large extent conditioned by the analysis and recommendations of various committees/working groups set up to address specific issues. The process has been marked by 'gradualism' with measures being undertaken after extensive consultations with experts and market participants. From the beginning of financial reforms, India has resolved to attain standards of international best practices but to fine tune the process keeping in view the underlying institutional and operational considerations

As early as August 1991, the government appointed a high level Committee on the Financial System (the Narasimhan Committee) to look into all aspects of the financial system and make comprehensive recommendations for reforms. The Committee submitted its report in November 1991, making a number of recommendations for reforms in the banking sector and also in the capital market. Shortly thereafter, the government announced broad acceptance of the approach of the Narasimhan Committee and a process of gradualist reform in the banking sector and in the capital market was set in motion which suggest measures for the healthy growth of each constituent of the financial sector.

1.1.2 Evolution of Banking System and Banking sector reform in India

A bank is a financial institution that provides banking and other financial services to their customers. A bank is generally understood as an institution which provides fundamental banking services such as accepting deposits and providing loans. There are also nonbanking institutions that provide certain banking services without meeting the legal definition of a bank. Banks are a subset of the financial services industry.

The first bank in India was called The General Bank of India established in the year 1786. The East India Company established The Bank of Bengal/Calcutta (1809), Bank of Bombay (1840) and Bank of Madras (1843). In 1921, all presidency banks were amalgamated to form the Imperial Bank of India which was run by European Shareholders. After that the Reserve Bank of India was established in April 1935. At the time of first phase the growth of banking sector was very slow. Between 1913 and 1948 there were approximately 1100 small banks in India. To streamline the functioning and activities of commercial banks, the Government of India came up with the Banking Companies Act, 1949 which was later changed to Banking Regulation Act 1949 as per amending Act of 1965 (Act No.23 of 1965). Reserve Bank of India was vested with extensive powers for the supervision of banking in India as a Central Banking Authority. After independence, Government has taken most important steps in regard of Indian Banking Sector reforms. In 1955, the Imperial Bank of India was nationalized and was given the name "State Bank of India", to act as the principal agent of RBI and to handle banking transactions all over the country. It was established under State Bank of India Act, 1955. Seven banks forming subsidiary of State Bank of India were nationalized in 1960. On the 19th July, 1969, major process of nationalization was carried out.

At the same time 14 major Indian commercial banks of the country were nationalized. In 1980, another six banks were nationalized, and thus raising the number of nationalized banks to 20. Till the year 1980 approximately 80% of the banking segment in India was under government's ownership. On the suggestions of Narasimhan Committee, the Banking Regulation Act was amended in 1993 and thus gates for the new private sector banks were opened. Indian commercial banks of the country were nationalized. The Government of India introduced economic and financial sector reforms in 1991 and banking sector reforms were part and parcel of financial sector reforms. These were initiated in 1991 to make Indian banking sector more efficient, strong and dynamic.

The recommendations of the Narasimhan Commission-I in 1991 provided the blue print for the first generation reforms of the financial sector, the period 1992-97 witnessed the laying of the foundations for reforms in the banking system. This period saw the implementation of prudential norms (relating to capital adequacy, income recognition, asset classification and provisioning, exposure norms etc.). The structural changes accomplished during the period provided foundation of further reforms.

1.1.3 Credit allocation Policy

Prior to the major reforms of the financial sector, credit allocation policy of the government in the banking sector is broadly stated

- 15 per cent of the deposits with banks are held as cash reserves with the Reserve Bank of India. This is termed as cash reserve ratio (CRR).

- 38.5 per cent of deposits with banks are lent out to government through the statutory liquidity requirement (SLR) by purchasing government securities etc., which carry a very low rates of interest compared to the market rate.
- Of the remaining funds, 40 per cent to be lent to the priority sectors (mostly agriculture and small scale industries) again at concessional rates. The levels of achievements vis-à-vis the prescribed targets as above for lending to priority sector by RRBs were reviewed in the meeting with the Estimate Committee of Parliament held on August 6, 2002. With a view to providing more credit to the segments under priority sector, it was decided that RRBs should achieve a target of 60 per cent of their outstanding advances for priority sector lending as against 40 per cent.
- Further, of the total priority sector advances, at least 25 per cent (i.e. 15 per cent of the total advances) were required to be advanced to weaker sections of the society. The revised targets were made effective from the year 2003-04 i.e. to provide loan to the exporting industries, food procurement programmes etc., at concessional rates.

Consequently, around 25 per cent of the bank's deposits were left to meet the needs of the remaining sectors (medium and large industries and for the wholesale trade). These sectors thus received insufficient credit at relatively high rates of interest.

1.1.4 Overview of Agricultural and Non- Agricultural sectors

1.1.4.1 Agricultural sector

Agriculture is the back bone of Indian economy which plays an important role in the economic development of India. It is the source for livelihood of more than 65 per cent of the country's population and it contributes less than 20 per cent to GDP, with a sizable share of exports. Moreover, agriculture derives its importance from the fact that it has vital supply and demand links with the manufacturing sector. To meet the requirement of the growing population and rapid developing economy, agriculture has to grow fast and get modernized. This requires the use of high pay off inputs, adoption of high yielding varieties, fertilizers, plant protection chemicals, modernized equipment and machineries which need huge investment. The agricultural sector of the Indian economy is labour intensive, land poor and capital scarce. Therefore, it would be very difficult to get the benefits of modernization of agriculture without adequate credit to the farmers at reasonable interest.

Agricultural credit started depicting a growth after bank nationalization in the country and it has been growing continuously since then. This has resulted in a significant increase in the access of rural cultivators to institutional credit and the contribution of informal agencies as credit sources have declined. The share of institutional agencies in the total agricultural credit supply was 7 per cent in 1951, which rose to 66.3 per cent in 1991. The next decade witnessed a slight decline in its share and it fell to 64.3 per cent in 2002-03 (Kumar *et al.*, 2010). These initiatives have had a positive impact on the flow of credit to agriculture. The share of different institutional agencies in the agricultural credit flow revealed that the institutional sources of agricultural credit flow have undergone a structural change in India. The share of scheduled commercial banks (SCBs) has increased from a mere 1.9 per cent in 1972-73 to 73 per cent in 2008-09. There seems to be a direct relationship between institutional credit flow and the level of agricultural development in India.

However, regional disparities in the distribution of institutional credit seem to have declined over time. The coefficient of variation in the distribution of institutional credit across states was 122 per cent in 1990-91 which declined to 94 per cent in 2000-01 and further to 81 per cent in 2007-08. But, 81 per cent is quite a significant level which reveals that the regional disparities in institutional credit flow do exist and are still a part of rural credit system (RBI, 2008).

Furthermore, a comparative analysis of direct credit to agriculture and allied activities during 1980s and since 1990s reveals the fact that the average share of long-term credit in the total direct finance has not only been much lower but has also decelerated (from over 38 per cent to around 36 per cent), which could have dampening effect on the agricultural investment for future growth process (Kumara *et al.*, 2010).

1.1.4.2 Non-agricultural sector

The non-agricultural sector or otherwise referred to as private sector especially the small scale industries which has employee strength ranging between 5-100 has emerged as a vibrant and

dynamic sector of Indian economy. It also contributes significantly to the nation's economy since independence with the twin objectives of employment generation and capital expansion. It has provided opportunities of self-employment to educated young men and experienced technicians from the middle level of society and contributed full to the growth of industrial entrepreneurship in the country. Today, small-scale industries (SSIs) are regarded as power tool for balanced regional economic development. These achievements are primarily due to the dynamic enterprising spirit of the small-scale industrialists themselves.

The state financial corporations (SFCs), which were set up principally to cater for the financial needs of small scale industries, hesitated to get too closely involved with them. This was mainly because banks and corporations tended to regard small-scale industries as rather bad credit risks just like agricultural sector. The relatively low stake entrepreneurs held in their enterprises and their inability to provide adequate security were other factors tending to increase the perceived risks of lending to this sector. The Bank played a key role in establishing or supporting institutions intended to enlarge the flow of credit to small industries and in encouraging existing institutions, notably the State Bank of India, to launch more liberal schemes to finance small industries in collaboration with state-level institutions.

Of all the elements that go into a business, credit is perhaps the most crucial. The best of plans can come to naught if adequate finance is not available at the right time. SSIs need credit support not only for running the enterprise & operational requirements but also for diversification, modernisation/ up gradation of facilities, capacity expansion etc. In respect of SSIs, the problem of credit becomes all the more critical whenever any episodic event occurs such as a large order, rejection of consignment, inordinate delay in payment etc. In general, SSIs operate on tight budgets, often financed through owner's own contribution, loans from friends and relatives and some bank credit.

Government of India recognised the need for a focused credit policy for SSIs in the early days of promotion of SSIs and RBI has been instrumental in devising a multi-stage approach/financial system for credit dispensation to different sectors of the economy, for example, agriculture, industry, exports, SSIs etc.

1.2 Significance of the study

Agriculture is an important part of economy of Karnataka. Karnataka has got a topography that is highly suitable for agricultural activities. It has been estimated that about 80 per cent of the total population in Karnataka is dependent upon agriculture. For many rural residents of Karnataka, agriculture is the major occupation. However, available resource base and the capacity to generate sufficient levels of financial resource within the rural sector particularly in agricultural sector are, however limited at present. Institutional financing is viewed from this angle as a principal resource of external finance to support agriculture and non-agricultural sector in a planned manner. Institutional credit enables the farmer to procure the necessary wherewithal of production and creates conducive climate for enhanced output.

But, agricultural credit is said to be effectively used, only when the availed credit induces sufficient marginal value to the farmers produce in order to facilitate the repayment of credit, along with the due interest amount, within the stipulated time to the agricultural credit institution. Keeping in view the place of agriculture in the study area, the attempt is to assess the disbursement of credit in the priority sectors and factors controlling it.

1.3 Objectives of the Study

In this backdrop, this study was undertaken to:

- 1 To analyze source-wise and purpose-wise flow of institutional credit to agriculture and non-agricultural sectors,
1. To identify factors influencing flow of credit to agriculture and non-agricultural sectors,
2. To assess the extent of recovery of credit in agriculture and non-agricultural sectors, and
3. To elicit the constraints in the flow and recovery of institutional credit to both sectors.

1.4 Hypotheses

To serve as a basis of investigation on the above afore-mentioned objectives, the following a priori expectations of outcomes are hypothesized.

1. The extent of flow of Institutional credit to non-agricultural sector is more than the agricultural sector.
2. A large number of factors influence the flow of institutional credit both in agricultural and non-agricultural sectors
3. Recovery performance of agricultural credit is poorer when compared with non-agricultural credit.
4. Institutional credit flow and its recovery performance suffer from many constraints.

1.5 Limitations of the study

Though, the study tries to be comprehensive in its scope, there are limitations inherent to it. The study deals exclusively with formal or organized institutional sources of credit while the informal sources of credit were not assessed. Moreover, within the formal institutional sources of finance, the coverage of institutions and time span is restricted to the commercial banks, RRBs, and co-operative banks for the period of not less than ten years, for reasons of data accessibility and easy analysis using a common factor for both agricultural and non-agricultural sector within the priority sectors. Even in the institutional sources, only direct agricultural and non-agricultural advances are considered in the form of short term and medium term credit, the other indirect services were not assessed. This is due to lack of proper documentation for long term credit in some districts, leading to missing data which could otherwise have affected analysis if considered.

Moreover, the extent of credit recovery could not be properly analysed due to the fact that the data obtained on credit outstanding contained lagged variables of previous years hence, could not be deducted from current years under study of credit disbursed. However, the objective was still assessed by determining the value of outstanding existing in each sector under study in order to evaluate the extent of recovery.

Flow of presentation of the study

The entire study has been presented in six chapters. Chapter-I deals with the significance of the problem, the issues involved and the specific objective of the study. Chapter-II includes the review of earlier studies that are relevant to the current investigation, chapter-III was devoted to the description of the study area, the nature and the sources of data, the tools and technique of analysis adopted for evaluating the objectives. The following chapter-IV summarized the result under appropriate heads consistent with the objectives of the study, whereas, chapter-V provided the explanation for the casual relationship between certain variables and the outcomes, which they produced. The last chapter summarized the investigations and gave conclusions to improve the performance of credit institutions. It also proffered a frame of reference for drawing policy measures.

REVIEW OF LITERATURE

A review of literature connected with a comparative study of flow of institutional credit to agricultural and non-agricultural sectors in north Karnataka was carried out. The findings contained earlier studies that were related to the research work and hereby presented under the following headings.

- 2.1 Source-wise and purpose-wise flow of institutional credit to agriculture and non-agricultural sectors.
- 2.2 Factors influencing flow of credit to agriculture and non-agricultural sectors.
- 2.3 The extent of recovery of credit in agriculture and non-agricultural sectors, and
- 2.4 The constraints in the flow and recovery of institutional credit to both sectors.

2.1 Source-wise and purpose-wise flow of institutional credit to agriculture and non-agricultural sectors

RBI (1995) report stated that the share of priority sector advance in the total credit of scheduled commercial banks (SCB) increased from 14.0 per cent in 1969 to 30.9 per cent in 1979, and then reached a peak of 42.6 per cent in 1989 on the eve of financial sector reform. Similarly, the performance of public-sector banks which dominate in total priority sector advanced. The share of priority sector advance in net bank credit increased from 14.6 per cent in 1969 to 44.6 per cent in 1989. The share of Small scale industries advance in net bank credit increased from 8.5 per cent in 1969 to 16.9 per cent in 1989. The setting of the target for the priority sector had a positive impact on channeling of credit to hitherto neglected sectors in the pre-liberalization era. On the other hand, the income and profit of commercial banks had been eroded by providing concessional loans and accumulating non-performing assets (NPA) of the priority sector lending by 1990.

Anonymous (2002) examined the growth of agricultural credit in India. He stated that need for finance is a major element of agricultural policy. Cultivation being a time bound process, therefore, it is needed to incur costs before a saleable output is generated. He found out that only non-institutional sources were the main suppliers of credit to Indian peasantry before independence. The 'Green Revolution Model' adopted for growth position of the small and marginal farmers was even more pathetic. The farming community of the country was badly caught in the clutches of moneylenders. Major proportion of the credit demand of farmers was provided by non-institutional sources of finance and rest was being met by the cooperative credit institutions. The participation of the commercial banks in the agricultural credit was negligible due to low rates of return. Whatever the small surpluses that were generated by even medium and large farmers, were usurped by the moneylenders in the shape of interest payments. Under these circumstances, the possibility of adoption of new production technology was very less. So, in agricultural finance, many formal institutional arrangements were initiated to reduce uncertainty, to prevent the transactions from being too costly and thus to allow realization of the productivity gains to large scale.

Singh and Nasir (2003) reported that agricultural credit increased in Bihar at an annual rate of 2.58 per cent at constant prices. Commercial banks and cooperatives were the main providers of agricultural credit. The credit flow was found to be adequate. Agricultural development and functional rural institutions had positive influence on the credit flow.

GOI (2004) stated that Rural Cooperative Banking and Credit Institutions plays an important role in meeting the growing credit needs of rural India and that the volume of credit flowing through these institutions has increased. The performance of these institutions, however (apparent in the share of total institutional credit and the indicators of their financial health), has been less than satisfactory and is deteriorating rapidly. However, a number of Committees have gone into the reasons for this situation and suggested remedial measures, but there has been little progress in implementing their recommendations.

Sahu and Rajasekhar (2005) analysed the banking sector reforms and credit flow to agriculture. The share of agricultural credit in total net bank credit was found to be declining especially after the reforms. The situation was reported to be grimmer in cooperatives. Better-off farmers have improved their access to formal credit, while share of small farmers has declined. Credit flow to agriculture was more to be negatively associated with investment in government securities and positively with incidence of rural bank branches. Credit subsidy was adversely affecting the supply of

agricultural credit. Reduction in lending cost was suggested as a measure to reduce the burden of credit subsidy.

CSO (2006) reported as per the provisional results, there are 42.12 million enterprises in the country engaged in different economic activities other than crop production and plantation. Out of which, 25.81 million enterprises (61.3 per cent) are in the rural areas and 16.31 million enterprises (38.7 per cent) in the urban areas. Five states viz. Andhra Pradesh, Maharashtra, Tamil Nadu, Uttar Pradesh and West Bengal together account for about 50 per cent of the total enterprises in the country. About 85 per cent of the enterprises are engaged in non-agricultural activities and the remaining in agricultural activities other than crop production and plantation. Such loans available to this sector include vehicle loans, machinery, building etc. These credit or loans facilities are usually obtained from commercial banks, Nabards, Self-help groups etc.

Ramesh (2008) while reviewing the issues in agricultural credit in India. The study revealed that the credit delivery to the agriculture sector continues to be inadequate. Notwithstanding their wide network, co-operative banks, particularly since the 1990s have lost their dominant position to commercial banks. The share of co-operative banks (22 per cent) during 2005-06 was less than half of what it was in 1992-93 (62 per cent), while the share of commercial banks (33 to 68 per cent) including RRBs (5 to 10 per cent) almost doubled during the above period. The efforts to increase the flow of credit to agriculture seems to have yielded better results in the recent period as the total institutional credit to agriculture recorded a growth of around 21 per cent during 1995-96 to 2004-05 from little over 12 per cent during 1986-87 to 1994-95. In terms of total credit to agriculture, the commercial banks recorded a considerable growth (from around 13 per cent to about 21 per cent), while cooperative banks registered a fall (over 14 per cent to over 10 per cent) during the same period.

Sukhpal *et al.* (2009) reported that since independence, cooperatives' loans were the major source of institutional agricultural credits in India. In spite of taking various measures to rejuvenate farm credit, the flow of credit to the agriculture sector remained inadequate quantitatively and qualitatively. The institutional sources are able to meet only 51 per cent of the credit requirement of the farm sector. Therefore, the non-institutional sources are largely approached by the farmers due to lack of their security assets, frequent needs, inadequate supply of institutional credit, undue delay, sophisticated procedure and malpractices adopted by the institutional lending agencies. He also found that the purpose for which a loan is taken / spent is an important indication of its potential to be repaid whether Productive loans included purchase of current agricultural inputs (seed, diesel/mobile oil and agro-chemicals) whereas unproductive purpose included expenditure on house construction, including farm building and repairs, social festivity, domestic expenditure, education, health care, purchase of car/scooter, payments of old debts, litigation and sending the family members abroad, etc.

Dilip (2010) examined the truth and Foleys in agricultural credit. He observed there are wide disparities found in region wise cropping areas and flow of banks credit. Rich areas received credit that is disproportionate to their cropping areas. Banks lend to farmers with lower risks profile and large land holding and are in affluent states as against RBIs definition of small and marginal farmers with land holding below 2.5 hectares. Banks, today, see agriculture as inconvenient necessity. Rather than lending directly to farmers, they lend up to the entities connected with agriculture. Like non-banking finance companies that lend to farmers and warehousing or companies that make farm inputs. Therefore, the share of indirect credit in Agri lending has increased from 16 per cent in 2000 to 24 per cent in 2010. The substantial amounts of credit have gone into indirect finance that is why its productivity impact is very low.

Patel (2010) broadly reviewed the performance of banks credit during the decade 2001-10. The study reported that commercial banks credit flow to agriculture increased from Rs.2, 85,146 crore during the Ninth Plan [1997-2002] to Rs.6,85,146 crore [240 per cent] during the Tenth Plan [2002-07]. Credit disbursement during the Eleventh Plan [2007-12] is estimated at Rs.19,59,524 crore [286 per cent], of which Rs.9,23,485 crore have already been disbursed between 2007-08 and 2009-10 and targets of Rs.3,75,000 crore for 2010-11 would be surpassed. Regional Rural Banks, accounted for 24.1 per cent disbursement of agricultural credit [Rs.1677 crore], which significantly improved to 35.7 per cent in 1983-84 when NABARD was established. Its share was 32.7 per cent in 1993- 94 when Agricultural Debt Relief Scheme was implemented and concept of Service Area Approach & financial sector reforms were introduced. Since 2001-02 its share progressively increased from 54.1 per cent to 74.9 per cent in 2009-10, with a 70.60 per cent share in the cumulative disbursements [Rs.16, 77,269 crore] between 2001-2010. The share of crop loans by commercial banks,

cooperatives & RRBs varied significantly from 58.37 per cent to 71.23 per cent with a mean value of 65.04 per cent in the total disbursements during 2003-04 to 2008-09. Average annual disbursement of crop loans & term loans amounted to Rs.1, 27,783 crore & Rs.68,674 crore respectively.

Mamta (2012) examined Indian financial system and Indian banking sector. Her reports stated that the banking system in India consists of commercial banks and co-operative banks. Commercial banks, which also include foreign banks and private banks, are the predominant segment. Cooperative banks, which are organized on the 'unit' banking principle, are mainly rural based although there are urban cooperative banks also operating in urban areas whose primary activity is buying, selling or holding financial assets. These institutions role is to ensure finance to all sectors and finance is a means of assuring the flow of capital. Historically, it has also been a means for guiding that flow.

2.2 Factors influencing flow of credit to agriculture and non-agricultural sectors.

Abate (2000) studied the magnitude of institutional credit flow to agriculture sector in Karnataka and indicated significant growth in quantum of agricultural advances in the state despite the limited expansion of credit infrastructure.

Ashok and Seema (2002) analyzed the defaults and policy options in institutional credit to Indian agriculture. The analysis revealed that although deposits and loans outstanding of RFI have increased manifold in the rural areas, overdue have also gone up significantly. From 1980 to 1998, the recovery of loans in cooperatives, regional rural banks and commercial banks has varied between 39-66 per cent. A higher level of recovery is observed only after 1995. Of the total amount that is due at different time periods, some of it is recoverable and some were irrecoverable and the latter often results into bad debts or defaults. The results also showed that during 1980, the share of bad debts in total loan outstanding was estimated to be 3.58 per cent. It reached its lowest level in 1989 at 2.72 per cent and then started moving upwards till it attained its highest level (4.25 per cent) in 1992. Thereafter, it showed a declining trend and arrived at almost its bottommost (2.91 per cent) by 1997. Though, defaults in Indian agriculture have risen over time, there exist tremendous fluctuations in their behavior across all the RFIs. It is observed that while commercial banks had a maximum share of defaults (46.25 per cent) in 1997, LDBs had minimum at 8.06 per cent. The share of RRBs and PACS in total defaults stood at 25.09 per cent and 20.6 per cent in that year. A higher incidence of overdue and the resultant bad debts are associated with a large number of factors, both internal and external to the system. The major factors are natural calamities, inadequate income generation, high transaction costs, inappropriate financial policies, poor working of the RFIs, follow up of prudential norms and provisioning of non-performing assets.

Khalid (2003) analyzed access to formal and quasi-formal credit in Zanzibar. The study was aimed at determining factors that influence accessibility of formal credit by the small farmers and artisanal fishermen. The results showed that there was inadequate flow of credit to the farming and fishing sub-sectors in Zanzibar. The existing formal banks: National Bank of Commerce (NBC), People's Bank of Zanzibar (PBZ) and Tanzania Postal Bank (TPB) completely avoided provision of credit to the agriculture and micro-enterprise sector. Government institutions and donor-funded development projects extended piecemeal credit services that were made available to farmers and artisanal fishermen. Generally, the performance of most of these micro- credit programmes was not encouraging. The empirical evidence of the study also indicated that age, gender, education, income levels, and degree of awareness on credit availability are factors that influenced credit accessibility by smallholder farmers and artisanal fishermen in Zanzibar. The results suggested a need to address key factors that inhibit access to credit by small farmers.

Rakesh (2004) examined agricultural credits in India and reported that though the outreach, the amount of agricultural credit have increased over the years, several weaknesses had crept in which had affected the viability and sustainability of these institutions. Furthermore, antiquated legal framework and the outdated tenancy laws have hampered flow of credit and development of strong and efficient agricultural credit institutions. A review of performance of agricultural credit in India revealed that though the overall flow of institutional credit has increased over the years, there are still several gaps in the system like inadequate provision of credit to small and marginal farmers, paucity of medium and long-term lending and limited deposit mobilization and heavy dependence on borrowed funds by major agricultural credit purveyors. These have major implications for agricultural

development as also the well-being of the farming community. Efforts would therefore be required to address and rectify these issues.

Gagan (2004) analyzed institutional finance for agriculture at micro and macro levels. The study showed that the percentage of number of loan accounts in the agricultural sector to the total bank accounts had been declining during both pre-reform and reform periods. Interestingly, although the number of accounts for the credit limit of less than Rs. 25,000 declined in the case of the agriculture sector during the pre-reform period, the proportion of amount of credit had increased. This indicated the credit rationing by banks to minimize transaction costs associated with agricultural lending, by reducing the numbers of accounts for better supervision and monitoring. In the case of non-agricultural sector, however, the proportions of both accounts and amounts for the credit limit of less than Rs. 25,000 increased during the pre-reform period probably due to higher interest rates on loans to non-agricultural activities.

Sahu and Rajasekhar (2005) analyzed the banking sector reforms and credit flow to agriculture. The share of agricultural credit in total net bank credit was found to be declining especially after the reforms. The situation was reported to be grimmer in cooperatives. Better-off farmers have improved their access to formal credit, while share of small farmers has declined. Credit flow to agriculture was more to be negatively associated with investment in government securities and positively with incidence of rural bank branches. Credit subsidy was adversely affecting the supply of agricultural credit. Reduction in lending cost was suggested as a measure to reduce the burden of credit subsidy.

Mohan (2005) examined the story of Indian financial sector reforms in terms of a number of segments such as banking, debt markets, forex markets, and others like non-banking financial companies. The study looked at various performance indicators of different segments of the Indian financial sector and found that there has been an improvement in efficiency, competitiveness and health of all the segments of the Indian financial sector. However, the study raised some issues for the future of this sector such as improved atmosphere for recovery created in the recent years coupled with greater awareness about market risks associated with large holding of securities portfolio seem to have induced banks to put greater efforts in extending loans.

Kumar *et al.* (2007) highlighted the withdrawal system of banks from rural credit due to decline in number of rural branches of scheduled commercial banks, poor monitoring of loans, indifferent attitude of banks, to the production process etc. The focus should be shifted to creation of conditions/linkages to sustain large scale capitalist production in agriculture.

Sukhpal *et al.* (2009) studied the inadequacies of institutional agricultural credit system in Punjab. In spite of various measures to rejuvenate farm credit, the flow of credit to agriculture sector remained inadequate quantitatively and qualitatively. The study result showed that though the institutional credit had increased rapidly over the years in Punjab, it still lacked behind the productive needs of the farmers in Punjab. A farmer on an average had to incur Rs. 4016 for obtaining a loan from commercial banks, which amounts to 5 per cent of the total loan obtained by him. In the case of cooperatives, the transaction cost was worked out to be 1.2 per cent of the loan and the cooperatives are located right in the villages. About 59 per cent farmers reported the procedure to get loans from the institutional agencies to be complicated and time-consuming. On the contrary, availing non-institutional loan was found easy. The study suggested simplification of loan application form and issuing of a simple but comprehensive record book to farmers containing information relating to his land record.

Kristina *et al.* (2013) studied and compared the institutional framework of the agricultural credit markets in selected European countries. It was revealed from the study that in a risk assessment, the most frequent reasons for rejecting a loan application are all linked to economic performance and the situation of the farmer. Personal characteristics, such as educational level or lack of experience, were generally perceived as less influential. Another interesting point when it comes to risk assessment is that in some countries the importance of asset-based lending compared with cash flow-based lending seems to differ when concerning a first-time applicant and when there is an application to extend a loan.

2.3 The extent of recovery of credit in agriculture and non-agricultural sectors

Gregory and Dale (1985) compared loan recovery data collected under the Rural Finance Project in Bangladesh with loan recovery problems of industrial loans and with official agricultural recovery information. The results reported a discouraging picture of loan recovery between 1978/1979 and 1984/85. The reported loan repayments received by the five banks was less than half of the loans coming due and the past due loans. Without outside sources of funds the continued viability of these financial institutions was questionable. Using a sample of short-term agricultural loans was reported, the percentage of the original principal recovered by the banks at the time of the survey and the aging of these arrears to provide further insight in to the loan repayment situation in Bangladesh. While a significant amount of the overdue agricultural loans appear to dribble in for repayment within the first year after the due date of the loan, a very substantial amount of the loans are repaid much later, or not repaid at all. Thus, the study indicated that STA loans have a better repayment rate than the official agricultural loan recovery position.

Anonymous (1999) reported that special attention was given to priority sector including agriculture and special programmes and schemes, which were launched to help the weaker section including small and marginal farmers. The study revealed that the problems encountered by the farmers, borrowers, non-borrowers and commercial banks in the delivery of agricultural credit various aspect covered for borrowers were appropriateness of credit use, timely supply, interest rate, subsidy, consumption loan, influence of middlemen, repayment securities marketing storage etc.

Dinabandu (2002) in his study on district central cooperative bank examined the impact of development action plans (DAPs) as a suitable mechanism through which the viability of rural financial institutions could be analysed and planned. The PDCCs resources, loan recovery performance, profitability and productivity were examined. It was concluded that the bank's DAP has created some awareness in the bank. However, the increase in the bank's performance in all areas could not be totally attributed to the DAPs.

Shah (2007) studied the cooperative credit in Maharashtra, with major share of crop loans. He reported that cooperatives have shown slower growth both in loan advances as well as membership. The reason was traced to financial sector reforms as loans meant for farm finance were diverted to investments thus adversely affected the credit flow. The poor recovery performance of the cooperative credit institutions is a major bottleneck in the smooth flow of credit. Persistence of chronic overdue particularly at the grass-root level has caused poor recycling of funds from the borrowers to financing agencies. Stringent measures are underway to improve the loan recovery performance of the banks by creating conducive recovery environment in their efforts in enforcing recovery.

Vidyamini (2009) reported that commercial banks in Karnataka made progress in the field of agricultural credit. This lending to agriculture is above the target stipulated by the Reserve Bank of India. The recovery performances were above the national average. But banks are facing many difficulties with record to extending and recovering of loans to agricultural sector.

Barik (2010) examined the kisan credit card (KCC) scheme – a dynamic intervention for reduction in rural poverty. The study revealed the reasons for non-adoption of KCC scheme by the targeted groups. The reason/problems includes fear factor of non-repayment of loan, lack of awareness of benefits of institutional (KCC) credit, bad experience with institutional sources of credit especially with cooperative banks and inefficient and non-transparent operational system of credit delivery under KCC scheme due to exploitation of brokers and apathetic attitude of the officials of the bank. The hassle-free loan from commission agents without any assigned purposes prohibits the farmers to avail the KCC facilities as the harvested produce makes its way to the market through commission agents. The study suggested the need for agencies to make provision for flexibility of drawals from a branch other than the issuing branch in order to improve their operational efficiency. Also, there is urgent need to make the credit delivery system under KCC scheme cost effective, transparent and farmers' friendly.

Bangladesh Banks (2011) reported that recovery of agricultural credit increased by 20.71 per cent on 101.12 billion from the recovery made in financial year 2009. The increase in recovery position was caused mainly due to continuation of incentive measures introduced previously for recovery of stuck-up loans during financial year 2010, which, inter alia, included ensuring the availability of inputs including fertilizer at the door steps of the farmers, implementation of the agriculture extension policy, simplification of the disbursement procedures of agricultural credit,

creating opportunities for investment in agriculture, modernization of research system for quality improvement of agro-products etc. The percentage of overdue with outstanding agricultural loan decreased from 31.02 per cent at the end of June 2009 to 28.35 per cent at the end of June 2010. The study suggested mechanism for recovery.

Padmanabhan (2012) reported that the performance analysis of a bank cannot be conducted solely on the basis of resources mobilised or advances made. Resources mobilisation, deployment of resources and recycling of resources are three main centres of banking business operations. Therefore, recovery is equally important activity in banking. Recovery in credit institutions is still more important as they are supposed to meet their social commitments too. Any delay in recovery hampers the recycling of funds and banks' ability to return the loans to higher financial institutions is also impaired. As a result, good borrowers and prospective members suffer. Overdue problem is harmful for defaulter borrowers too. When they fail to return the money, bank charges them penal rate of interest. It burdens them with more financial liabilities and they could not avail of fresh loans. Any delay in recovery on the part of credit institutions management also creates a situation for mis-utilization of funds at the hands of borrowers as they may spend their borrowings on non-productive activities. The advances of co-operative banks are mainly directed towards agriculture, tiny/small scale industries and small business enterprises. These sectors are characterised by higher risks and lower returns. These activities can easily succumb to the vagaries of nature, changes in government policies and other pulls from various quarters.

Padmanabhan (2012) found that the following factors have a bearing on recovery of loans in the agriculture and rural sector;

- Low production/productivity level in the farms owned by small and marginal farmers on account of inadequate finance, non-adoption of scientific agriculture practices, etc.;
- Occurrence of natural calamities (drought, flood, pest attack, etc.)
- A large number of small farmers/small units have been facing marketing problems;
- Crowding of activities leads to non-viability of large number small/tiny industrial units;
- Lack of managerial expertise and technical competence;
- Imperfect rural markets-farmers/rural entrepreneurs not realising remunerative prices and exploitation by middlemen;
- Infrastructure constraints-absence of backward and forward linkage;
- The mortality rate is very high in case small borrowers who are not getting adequate extension support at the appropriate time from various agencies; and
- The recovery climate has been vitiated by waiver of loans and therefore, a part of borrower community, despite income generation, is unwilling to repay bank's dues.

For banks to set up their recovery drive matching with the harvesting seasons and strengthen incentive measures ensuring appropriate dissemination of information so that the recovery of agricultural loan get improved further in the years to come.

Gandhimathi (2012) identified several weaknesses in the rural credit delivery system which included poor loan recovery and overdue. In this context, the study attempted and analyzed the determinants of repayment and overdue. The study revealed that non-farm income and consumption expenditure were the dominant factors in classifying the defaulters into wilful and non-wilful defaulters. The wilful defaulting was mainly due to the expectation of the borrowers to write-off the loans and inefficient bank management.

2.4 The constraints in the flow and recovery of institutional credit to both sectors.

Morgan (2000) analyzed bank commitment relationships and credit flow constraints. Evidence in this paper suggested that a close banking relationship i.e. a loan commitment in particular relaxes cash flow and cash management constraints on firms. Given firms' prospects (Q), the investment and cash flow correlation is substantially lower when firms have a bank loan commitment. Firms with a commitment simply run down their stocks of cash (or borrow more) when their cash flow falls but their investment prospects remain strong. The different investment-cash flow sensitivities and cash management practices suggest that the firms with a bank commitment relationship are less financially constrained.

Harrison *et al.* (2004) highlighted how firms often cite financing constraints as one of their primary obstacles to investment. The study stated that if incoming foreign investors borrow heavily from domestic banks, multinational firms may exacerbate financing constraints by crowding host-country firms out of domestic capital markets. The study also found out that different measures of global flows are associated with a reduction in firm-level financing constraints. It was shown that one type of capital inflow—Direct Foreign Investment (DFI)—is associated with a reduction in financing constraints. Secondly, those restrictions on capital account transactions negatively affected firms' financing constraints. DFI inflows are associated with lower sensitivity of investment to cash flow for firms without foreign assets and for domestically owned enterprises. Finally, the results indicated that these effects are stronger for low-income than for high-income regions.

Mahmood and Hussain (2004) carried out a study of socio economic constraints in the flow of agricultural credit. The study revealed the distribution of the respondents with regard to obtaining loan during the last crop season from institutional sources and distribution of the respondents with regard to receiving the loan in time or not. It was observed that 65.60 per cent of the respondents obtained loan from commercial banks during the last crop season, 29.60 per cent obtained loan from ADBP, and only 4.80 per cent of the respondents obtained loan from the other sources. The reason for the majority to get loans from commercial banks may be their nearness from the villages. It also reported that, 72 per cent of the respondents were those who had received the loan in time while 28 percent respondents did not receive the loan in time because of illiteracy, ignorance and some crude attitude of the bank people and etc.

Dohcheva (2009) studied the credit rationing in agricultural credit markets in Bulgaria and indicated that Agricultural sector in Bulgaria faces severe credit constraints and limited access to credit market. As a result it was observed that small amount of overall bank credit were advanced to farmers. Bank credit was the main source of external financing for farmers, government also intervenes on financial markets in an attempt to increase financial funds to agriculture and to improve farmers' access to credit market. Nevertheless, farmers are a subject to high bank requirements in respect to collateral value, financial performance and co-finance of investment projects, which results in smaller loans or rejection for credit at all. High banks' requirements reflected restrictive credit policy to agriculture and turned into effective mechanisms of credit rationing. It was discovered that Agricultural credit markets are characterized by small size of the loans and low overall credit amount at a price determined by lenders, as the latter use non-price mechanisms to constrain farmers' access to credit. Commercial banks preferred to allocate funds to more profitable and less risky economic sectors.

Robert *et al.* (2009) examined the extent to which bank market power alleviates or magnifies small and medium scale enterprises (SME) credit constraints using a large panel dataset of more than 118,000 SMEs across 20 European countries over the period 2005–2008. The results strongly supported the market power hypothesis, namely, that increased market power results in increased financing constraints for SMEs. Additionally, it was found that the relationship exhibits heterogeneity across firm size and opacity in a manner that suggests that the true relationship between bank market power and financing constraints might not be fully explained by the existing theory. Similarly, the effect of bank market power on financing constraints increases in financial systems that are more bank dependent.

Bhaumik *et al.* (2011) studied firm investment and credit constraints in India. Stochastic frontier approach was used to estimate the impact of firm characteristics on investment decisions of Indian firms during the 1997-2006 periods. The results suggested that the degree of credit constraint of an average firm *increased* over time during the sample period, despite significant reforms of the Indian banking sector by the turn of the century. It was also found that the degree of credit constraint decreases with cash flow and assets, which is consistent with the available literature. Further, there is a threshold effect of leverage and the degree of credit constraint is greater for highly leveraged firms. Similarly, it was observed that the beneficial impact of business group affiliation on the degree of credit constraint decreases over time, and is eliminated by the end of the sample period.

Risto and Rima (2013) investigated the complex interactions between credit constraints, political instability, and capital accumulation using a novel approach based on Kiyotaki and Moore's (1997) theoretical framework. Drawing on a unique firm-level data set from Middle-East and North Africa (MENA), the empirical findings pointed to a large and significant effect of credit conditions on capital accumulation and suggest that continued political unrest worsens credit constraints. The results supported the view that financial development measured by a relaxing of financial constraints is a key to macroeconomic development.

METHODOLOGY

In pursuance of the objectives of the study, this study explores the description of the study area, sampling procedure adopted, methods of data collection, nature and sources of data used and various statistical tools and techniques employed for analyzing the data. At the end of the chapter, few concepts that are used in the study are defined and explained to enhance a better understanding of the issues those terms are concerned with in the study.

The methodology followed in the study is explained in the following sections.

- 3.1. Description of the study area,
- 3.2. Sampling procedure,
- 3.3. Nature and sources of data,
- 3.4. Analytical techniques employed and
- 3.5. Definition of terms and concepts used in the study.

3.1 General description of the study area

The study on comparative study of flow of institutional credit to agriculture and non-agricultural sectors was taken up in North Karnataka. Three districts was selected for comparison within the region.

Karnataka state is one of the 29 states in India located in the southern part of the country between 11°31" and 18°45" north latitude and 72°12" and 78°40" east longitude. It is bordered by Maharashtra and Goa states in the North, Andhra Pradesh state in the East and Tamil Nadu and Kerala states in the south. On the west, the state opens to the Arabian Sea. The state covers an area of 191, 976 sq. km which accounts to about 6 per cent of the total geographical area of India.

3.1.1 Demographic and climatic features

Karnataka is the ninth largest state by population and the eight largest states by area with 61,130,704 inhabitants for 2011 census. The climate of the state may be described as tropical monsoon type, which is the result of the inter-play of the two opposing masses of the south-west and north-east monsoons. In most part of the state, summer is languorously warm and winter is bracingly cool. In the northern region, winter is delightfully cool but summer is uncomfortably hot. In coastal region, humidity makes summer enervating with mean temperature levels of 24°C to 31°C. The northern-maiden region is hot in summers and warm in winters with mean monthly temperature from 22°C to 25°C. The normal rainfall ranges from 562 mm to 4119mm across the districts. The actual average rainfall during the year for the state was 1248 mm.

3.1.2 Major occupation

For many rural residents of Karnataka, agriculture is the major occupation. A total of 123,100 km² of land is cultivated in Karnataka constituting 64.6 per cent of the total geographical area of the state. Agriculture being the main occupation of the state, Irrigation place utmost significant part in obtaining increased yields from the land. The development of Irrigation in the state was slow and unsystematic during the pre-independence era. However, there were some notable Irrigation works undertaken and completed ever since then. Agriculture in Karnataka is still heavily dependent on the southwest monsoon since the extent of arid land in the state is second only to Rajasthan. Only 26.5 per cent of sown area (30,900 km²) is subjected to irrigation.

However, Karnataka economy has changed significantly over the years. It has a strong and vibrant industrial base built up over the years. These imply that the State economy is shifting away from agriculture, which is a positive sign only if viewed from the point of view of structural changes, but is accompanied by serious negative externality associated factors with the farm sector livelihood.

3.1.3 Delineation and general description of the zone

The three districts have been selected from three different zones for the purpose of this study based on their average annual rainfall.

Table 3.1: Annual rainfall pattern of the districts (in mm)

Year	Belgaum	Dharwad	Gadag
2004	811.7	648	626.1
2005	1194	973.7	633.2
2006	1016	697.9	493.3
2007	944.9	860.3	790
2008	8013	773.6	733.8
2009	1281.3	890.7	861.1
2010	1007.4	879.3	720
2011	830	772	631
2012	808	734.8	687
2013	823.7	787.7	492.5

Source:India Meteorological Department (IMD) (2004-10) & Annual credit plan (ACP) of lead Bank (2011-13)

1.1 Location and Geographical Area.

Belgaum is located at 15.87°N 74.5°E. The city is situated in the northwestern parts of Karnataka and lies at the border of two states, Maharashtra and Goa on the Western Ghats (50 km from Goa state border). It is one of the oldest towns in the state, lying at a distance of 502 km from Bangalore; 515 km from Hyderabad and 500 km from Mumbai.

Gadag, a unique district located in the western part of northern Karnataka and lies between 14.52 North latitudinal parallels and 75.17 and 76.02 East longitudinal parallels. The district is bounded by six districts namely Dharwad on West, Belgaum on the North West, Bagalkot on the North, Koppal on the East, Bellary on the South East and Haveri on the Southwest. MalaPrabha river in the North and Tungabhadra in the South form the natural Boundaries. The total area of Gadag is 4,656 km².

Dharwad district is situated in the Western sector of the northern half of Karnataka State. The district encompasses an area of 4,263 km² lying between the latitudinal parallels of 15°02' and 15°51' North and longitudes of 73°43' and 75°35' East. The district is bounded on the North by the District of Belgaum, on the East by the district of Gadag, on the South, Haveri and on the West by Uttara Kannada district. All these districts which surround Dharwad district belong to Karnataka State itself.

3.2 Sampling Procedure

Random sampling technique was employed for the study. The theme of the study was to comparatively evaluate the flow of institutional credit to agricultural and nonagricultural sectors. In this context, the northern part of Karnataka was considered because it has districts that have both features of the sectors under study. In the northern part of Karnataka, three districts were randomly selected each representing features such as irrigated, semi-dry and transitional areas.

3.2.1 Selection of Institutions

The selections of the institutions were based on the three main institutions within the priority sector lending. This was done in order to have a common ground for assessment of the flow of credit to both sectors under study. The informal institutions and other formal institutions were not assessed. Thereby, making the evaluation based solely on credit flow within the priority sector lending.

3.2.2 Selection of officials

The various lead bank managers and other top officials were considered for eliciting their opinion about the constraints that were usually encountered in the flow and recovery of institutional credit. For the present study, a total of eight officials were interviewed and considered. Due to low and unequal respondents and also the similar constraints faced by each of the districts under study, the results could not be differentiated district wise.

3.3. Nature and sources of data

The data were mainly secondary data in respect to advances to different purposes like, crop loans, minor irrigation, land development, farm mechanization, tiny sectors, rural artisans, SSIs etc. Ten years data were collected from the annual reports of Lead Bank. More number of years would have been considered but due to unavailability and difficulty in obtaining old data, a total period of ten years was considered from 2003-04 to 2013-14 to document a most recent study of the credit advanced to different districts. Other relevant data were collected from the website of government institutions.

For evaluating the objective on constraints of credit flow in the study, primary data were collected by personal interview of the top officials of the district lead banks to ensure accuracy and comprehension.

3.4 Analytical techniques employed

Keeping in view the specific objectives of the study, the data collected were subjected to following statistical analysis.

3.4.1 Tabular analysis

3.4.2 Growth rate analysis

3.4.3 Correlation coefficient

Table 3.2: General features of the selected districts (2013)

Sl. No.	Particulars	Dharwad	Belgaum	Gadag
1	Total geographical area (Sq. km)	4263	13415	4657
2	Total population (No.)	1846993	4213000	972000
3	Number of inhabited villages (No.)	379	1270	329
4	Population density (persons/sq. km)	377	314	208
5	Literacy rate (%)	71.16	64.20	66.10
6	Agricultural holdings (lakh)	362874	532162	148970
7	Normal rainfall (mm)	787	823	631
8	Actual rainfall (mm)	476.3	-	492.50
9	Commercial banks (No.)	171	262	64
10	Co-operative Banks (No.)	64	02 (93)	17
11	Rural Regional Banks (RRBs) (No.)	19	01(130)	47
12	Total cropped area (lakh ha)	5.12	8.33	5.53
13	Total irrigated area (ha)	57261	4668008	99000

Source: Annual credit plan of district-2013

Table 3.3: Land use pattern in selected districts in 2013

Sl. No.	Land use Category area (lakh ha)	Dharwad	Belgaum	Gadag
1	Area under forest	35235	190424	33337
2	Land put to non-agriculture use	22057	69617	11628
3	Barren and uncultivable land	21521	39370	3875
4	Cultivable waste	1075228	-	1010
5	Permanent pastures and other grazing land	3571	25000	2592
6	Land under miscellaneous tree crops and groves	162	345	269
7	Current fallow	3985	44342	72907
8	Net area sown	310816	833021	404457
9	Fallow other than current fallow	-	-	1419
10	Total cropped area	325954	1011264	552926
11	Area sown more than once	512031	-	165848

Source: ¹Annual credit plan of district-2013 & ²Ministry of MSME, Govt. of India.

Table 3.4: Area under major crops in in selected districts

(In lakh ha)

Sl. No.	Crops Area (lakh ha)	Dharwad	Belgaum	Gadag
1	Paddy	25952	65511	-
2	Jowar	51139	173420	19325
3	Wheat	41041		34785
4	Maize	41377	126084	27055
5	Cotton	72612		34785
6	soyabean	-	4451	-
7	Groundnut/oilseeds	75965	71418	50245
8	Sunflower			88895

Source: Comprehensive District Agricultural Plan document

Table 3.5: Industrial profile (SSIs) in selected districts

Sl. No.	SSIs Industry	Number of units			Investment (Lakh Rs.)			Employment		
	Types	B	D	G	B	D	G	B	D	G
1	Agro based	3437	40	998	8215.0	80.27	1573.97	30156		4392
2	Soda water	-	3	67	-	40.27	117.56	-	35	331
3	Cotton textile	-	60	530	-	84.85	297.9	-	140	3165
4	Woolen, silk & artificial Thread based clothes.	143	30	48	950.00	20.00	540.05	1981	60	743
5	Jute & jute based	193	0	-	2440.00	00	-	3587	00	-
6	Ready-made garments & embroidery	4825	32	356	7313.50	15.20	87.57	27441	75	1056
7	Wood/wooden based furniture	4295	59	418	6319.50	52.71	236.52	16507	93	1470
8	Paper & Paper products	604	6	127	1876.20	45.47	496.81	3545	32	673
9	Leather based	2813	63	342	2886.10	76.99	40.99	8985	215	952
10	Chemical/Che mical based	209	22	146	1692.90	85.97	69.10	2351	106	578
11	Rubber, Plastic & petro based	256	8	65	1678.60	69.72	193.76	1361	27	250
12	Mineral based	2802	NA	53	1771.00	NA	116.54	32347	NA	244
13	Metal based (Steel Fab.)	1029	80	42	1877.15	125.10	54.93	24999	224	187
14	Engineering units	3231	202	98	14704.17	1200.04	105.91	29627	1800	413
15	Electrical machinery and transport equipment	1389	29	21	1942.75	46.16	526	4200	54	43
16	Repairing & servicing	3581	160	209	3826.89	1051.17	116.06	15350	375	695
17	Others	6176	106	141	5857.00	1156.89	392.91	27327	242	697
18	Total	35395	900	3661	- 64141.76	4150.81	4966.65	231436	3687	15889

Source: Ministry of MSME, Govt. of India. B- Belgaum, D-Dharwad, G-Gadag

3.4.4 Stepwise regression

3.4.5 Discriminant analysis

3.4.1 Tabular analysis

The technique of tabular analysis was used for computing percentage of the variables relating to the total credit flow of each purpose to the total priority sector (TPS) and constraints in flow and recovery of credit. Percentages were worked out to arrive at meaningful results for the purpose of comparison.

3.4.2 Compound growth rate analysis

In order to assess the growth in credit to different purposes in the district, compound growth rates were worked out for a period of 10 years from 2003-04 to 2013-14. The Compound growths were computed by using the exponential function of the form.

$$Y_t = AB^t e^{u_t} \text{ ----- (1)}$$

Where,

Y_t = Credit disbursed during time t

A = Y in the base year

t = Time period

u_t = Error term

$B = 1+g$, where g = growth rate.

By taking the logarithm, equation (1) was reduced to the following form

$$\text{Log} Y_t = \text{Log} A + (\text{Log} B) t + u_t \text{ ----- (2)}$$

Where $\text{Log} A$ and $\text{Log} B$ were the parameters of the function obtained by Ordinary Least Square method (OLS).

Defining, $Q_t = \log Y_t$

Where,

t = time period.

$a = \log A$

$b = \log B$

Equation (2) could be written as follows

$$Q_t = a + bt + u_t \text{ ----- (3)}$$

Once the above equation is estimated, g can be computed as:

$$g = [\text{Antilog}(b)-1] \times 100 \text{ ----- (4)}$$

For comparison purposes the growth rates arrived at with the help of Equation (4) was multiplied by 100 to obtain the percentage change in the variable concerned, that is the percentage of growth $[(\text{Antilog } b)-1] \times 100$

3.4.3 Pearson correlation coefficient

Pearson's correlation coefficient is a statistical measure of the strength of a *linear* relationship between paired data. In a sample it is denoted by r and is by design constrained as follows

$$-1 \leq r \leq 1$$

Furthermore:

- Positive values denote positive linear correlation;
- Negative values denote negative linear correlation;
- A value of 0 denotes no linear correlation;
- The closer the value is to 1 or –1, the stronger the linear correlation.

Pearson's correlation was run to determine the relationship between the agricultural and non-agricultural credit with the factors selected to be influencing them.

3.4.4 Stepwise regression

Stepwise regression is a semi-automated process of building a model by successively adding or removing variables based solely on the *t*-statistics of their estimated coefficients. Properly used, the stepwise regression option puts more power and information at fingertips than does the ordinary multiple regression option, and it is especially useful for sifting through large numbers of potential independent variables and/or fine-tuning a model by poking variables in or out.

The main purpose of adopting stepwise regression was to find exactly which factor(s) influence the credit flow in each sector across the districts. To achieve this objective, the model of regression fit for analysis and the estimates of the parameters have the following form.

$$Y = a + b_1 X_1 + b_2 X_2 + b_3 X_3 \dots \dots \dots + b_i X_i + e_i$$

Where,

Y = dependent variable

A = estimated intercept

B_i = estimated coefficients of independent variable

X_i = independent variables considered, for i-1, 2, 3.....n

e_i = error term

The variables considered in the model under agricultural sector for the period of 2004-05 to 2013-14 are:

Y = agricultural credit

X₁ = area under irrigation (ha)

X₂ = the gross cropped area (GCA)

X₃ = average operational size of land holdings in hectares

X₄ = amount of rainfall (in mm)

X₅ = number of bank branches (unit number)

X₆ = Level of Bank deposit (in Rs.)

X₇ = number of accounts

X₈ = Literacy level (%)

The variables considered in the model under non-agricultural sector for the period of 2004-05 to 2013-14 are:

Y = non-agricultural credit

X₁ = number of units of SSIs (number)

X₂ = Level of Bank deposit (in Rs.)

X₃ = Employment rate (number)

X₄ = number of accounts (number)

X₅ = number of bank branches (unit number)

X_6 = Literacy level (%)

X_7 = land put to nonagricultural use (hectares)

An application of Stepwise regression is the most sophisticated of the multiple regression statistical methods. Each variable is entered in sequence and its value assessed. If adding the variable contributes to the model then it is retained, but all other variables in the model are then re-tested to see if they are still contributing to the success of the model. If they no longer contribute significantly they are removed. Thus, the method usually ensures that the model ends up with the smallest possible set of predictor variables.

3.4.5 Discriminant analysis

The extent of loan outstanding existing in each of the sector was determined by using discriminant analysis. Discriminant analysis was employed with a view to determine the extent of recovery of credit to both sectors under study. Conversely, the data collected on outstanding contained lag values hence, the analysis carried out was to evaluate the extent to which each sector was contributing to the total outstanding of both sectors. To achieve this objective, linear discriminant function was used.

$$Z = I_1 X_1 + I_2 X_2 + I_3 X_3 + \dots + I_p X_p$$

The single weighted composite score will minimize errors of misclassifying and individual unit from one group to the other group. It is a statistical tool used to discriminate between two or more classes of certain relevant characters. The method seeks to obtain the coefficients (I 's) such that the squared difference between the mean Z-score for one group and to mean Z-score for the other group is as large as possible in relation to the variations of the Z-score within each group. With the discriminant function, it is possible to measure the net effect of the variables, i.e., the effect of one variable by holding other variables constant.

The relative importance of the variables in regard to their power to discriminate between the groups can be known with the help of discriminant function.

Fischer's linear discriminant function is given by:

$$Z = I_1 X_1 + I_2 X_2 + I_3 X_3 + \dots + I_p X_p$$

The discriminant function for two groups

We assumed that the two populations to be compared have the same covariance matrix but distinct mean vectors μ_1 and μ_2 . And worked with samples $y_{11}, y_{12}, \dots, y_{1n_1}$ and $y_{21}, y_{22}, \dots, y_{2n_2}$ from the two populations. As usual, each vector y_i consists of measurements on p variables. The discriminant function is the linear combination of these p variables that maximizes the distance between the two (transformed) group mean vectors. A linear combination $z = a^1 y$ transforms each observation vector to a scalar:

$$z_{1i} = a^1 y_{1i} = a_1 y_{1i1} + a_2 y_{1i2} + \dots + a_p y_{1ip}, \quad i = 1, 2, \dots, n_1$$

$$z_{2i} = a^1 y_{2i} = a_1 y_{2i1} + a_2 y_{2i2} + \dots + a_p y_{2ip}, \quad i = 1, 2, \dots, n_2.$$

Hence, the $n_1 + n_2$ observation vectors in the two samples, are transformed to scalars

$$\text{Such that: } Z = \sum I_i X_i$$

Where,

Z = Total discriminant score for the groups

X_i = variable or factor or characteristic selected to discriminate the groups

I_i = linear discriminant co-efficient

P = the number of characters

The Mahalanobis D^2 statistics is used to measure the distance between the two groups.

The Mahalanobis D^2 is given below,

$$D^2 = \sum_i L_i d_i$$

Where,

L_i = matrix difference between the mean of two groups

d_i = matrix of the coefficients

3.5. Definition of terms and concepts used in the study.

Priority sector: It refers to sectors in the economy given due attention in the credit system so that these sectors are promoted.

Total priority sector (TPS): It includes agriculture and allied activities, small scale industries (with less than Rs. one crore investment), small road transport operators, small retail trade, small business activities, consumer cooperative societies and fair price shops, tiny sector industries, professional and self-employed persons and housing finance.

Non-farm sector (NFS): According to the revised edition, it has been renamed as micro, small and medium enterprises (MSME) covering major parts of other priority sector credit. It includes SSIs, tiny sector, rural artisan etc.

Other priority sector (OPS): It includes activities like housing, education, consumption loans etc. According to the revised edition of RBI, most of its activities have been shifted to service sector in MSME.

Allied sector: It includes dairy development, poultry, sheep and goat rearing, fishery, forestry and waste land development.

Small scale industries (SSIs): They constitute the largest share of non-farm sector (NFS).

Agricultural credit: It is the credit provided for the purpose of agricultural operation. It includes crop loan, minor irrigation, farm mechanization, plantation, horticulture, and land development.

Non-agricultural credit: It is the credit provided for non-agricultural operation. It includes tiny sector, village industries, rural artisans, SSIs, and other non-farm miscellaneous.

Outstanding advance: It refers to the cumulative, quantum of credit disbursed and not repaid on that specific date.

Loan: It refers the quantum fresh credit disbursed during that specific year.

Crop loan: It refers to the amount of agricultural credit made available to farmers for seasonal agricultural operations from the financial intermediaries.

Term loan: It refers to the total quantum of agricultural credit reached to the farming community in the form of short, medium and long term loan from the credit institutions.

Average size of holding: It Refers to the number of hectares of cultivable land per farmer in the districts.

Gross cropped area (GCA): It refers to the total hectare of the net sown area in all seasons and the area sown more than once in the State during the specific year. It is used as independent variable.

Bank branch: The term 'bank branch' in this study refers to the number of bank branches of commercial and Regional Rural Banks in the State per lakh population. It is used as an indicator of the spread of banking infrastructure.

Bank deposit: The total per capita bank deposit of all credit intermediaries in the districts (in Rs.) is taken as a representative index for bank deposit in the districts, and it is assumed to indicate the availability capital for credit deployment.

Credit flow: This refers to the amount of credit that is made available to beneficiaries in districts. It mainly refers to the amount of credit made available to borrowers channeled through the credit institutions in the district, viz., Commercial Banks, Regional Rural Banks, and Cooperative Banks. It is assumed that credit disbursed by these institutions to borrowers is used for agricultural or nonagricultural purpose.

Commercial banks (CB): The involvement of commercial banks in rural credit in a big way started through the nationalization of 14 commercial banks in 1969. To promote rural lending, commercial banks have established specialized branches mainly targeted to agricultural lending. Commercial banks provide agricultural lending both from their own resources as well as refinances from NABARD. They provide short, medium and long term loans.

Regional rural banks (RRBs): The Regional Rural Banks, which were established in 1975, are supported by public sector commercial banks. These banks were established to provide lending services specifically to weaker sections of the society, viz., small and marginal farmers, agricultural laborers, rural artisans, small traders, self-employed persons, etc., those who have little access to commercial banks and cooperative lending. In recent years, however, these banks are allowed to advance lending to non-targeted groups.

Cooperatives: Cooperatives financing to agriculture in the districts was effected through two independent institutions, viz., co-operative banks for short and medium term credit with a three-tier structure, and cooperative agricultural and rural development bank with a two-tier structure.

Long -term cooperative credit structure

(A) Karnataka State Cooperative-Agricultural and Rural Development Bank (KSCA and RDB) Ltd.,

The KSCARDB is an apex institution at the State level in the two-tier structure. It functions as a link between the primary level credit services and the NABARD. It monitors, provides guidance and grant loans to PCARD or individual borrowers through branches.

(B) Primary Cooperatives Agricultural and Rural Development Bank (PCARD Bank) Ltd.

These institutions are the grass root structure in the two-tier credit system. They are established at taluk levels and provide a credit service for long term land based activities, viz., minor irrigation, farm mechanization and land improvement

Short- term and medium term cooperative structure

Karnataka State Co-operative Apex Bank Ltd., (KSCAB) (or State co-operative bank - SCB)

In the three-tier structure of cooperatives credit system, the Karnataka State Cooperative

Apex Bank Ltd., forms the apex state level bank. The primary objective of this bank is to link cooperative credit societies (PACS) and DCCBs with the RBI/NABARD.

(B) District central cooperative banks (DCCB)

The district central cooperative banks in the three tier structure form the midway link between. the KSCAB and the primary agricultural credit societies at the grass root level. The DCQB meet the credit requirement of PACS for production, supply and marketing. These banks channel the financial. Resources for agriculture and rural development of state and central government, RBI/NABARD and KSCAB.

(C) Primary agricultural credit societies (PACS)

PACS are the grass root level cooperative credit institutions in the three-tier structure. These societies take credit resources from DCCBs or other sources and disburse short-term and medium term advances to members in the rural and semi-urban areas.

Direct advance: It refers to the quantum of credit advanced to borrowers (e.g. farmer) directly from the lending institutions.

Indirect advance: It refers to the amount of credit channeled to borrowers from lending institutions through other secondary lending organs. Instance of this is the amount of advance given to sugarcane cultivators from cooperatives and commercial banks through sugar factories.

Short-term credit: This has repayments periods of less than one year. These deal with short term credit which may either be secured or unsecured. (Secured credit are those which require a collateral backing, while unsecured credit or clean credit are those which have no collateral requirements)

Medium-term credit: Such credits are those with a maturity period of more than one-year but less than 5 years.

Long-term credit: It refers are to maturity periods of 5 years and more.

Credit subsidy cost: It refers to estimated long-term amount that a direct loan or loan guarantee will cost the Federal Government. This fee is used to protect the government against the risk of estimated shortfalls in loan repayments.

Credit policy in Karnataka: The direction and thrust of policy of agricultural credit basically emanates from the RBI and Central Government. Operational guidelines and policy directives are forwarded to maintain adequate functioning and liquidity in the system and ensure stability of medium and long term interest rates. Cash reserve ratios and statutory liquidity ratios are manipulated as a controlling mechanism by RBI. Apart from such operations, the RBI has set some operational credit policies as a target. The major target applicable to scheduled commercial banks (including RRBs) is the target set for priority sector lending.

RESULTS

In accordance with the objectives of this study, the data collected from both primary and secondary sources were analysed and interpreted. The findings of the study are presented in this chapter under the following heads.

- 4.1 Comparative flow of institutional credit in the study area
- 4.2 Factors influencing institutional credit flow in each district of the study area
- 4.3 Recovery performance in both agricultural and non-agricultural sectors
- 4.4 Constraints in the flow and recovery of credit

4.1 Comparative flow of institutional credit in the study area

For a better assessment in the comparability of flow of Institutional credit in the study area, the source-wise and purpose-wise flow of credit in each district becomes a necessity. The flow of credit is therefore broadly categorized under following headings.

- 4.1.1 Source-wise growth rate of Institutional credit
- 4.1.2 Instability in source-wise flow of Institutional credit
- 4.1.3 Purpose-wise distribution of Institutional credit
 - 4.1.3.1 Distribution of credit flow in TPS of Belgaum district
 - 4.1.3.2 Distribution of credit flow in TPS of Dharwad district
 - 4.1.3.3 Distribution of credit flow in TPS of Gadag district
 - 4.1.3.4 Distribution of credit flow in agricultural sectors of Belgaum district
 - 4.1.3.5 Distribution of credit flow in agricultural sectors of Dharwad district
 - 4.1.3.6 Distribution of credit flow in agricultural sectors of Gadag district
 - 4.1.3.7 Distribution of credit flow in non-agricultural sectors of Belgaum district
 - 4.1.3.8 Distribution of credit flow in non-agricultural sectors of Dharwad district
 - 4.1.3.9 Distribution of credit flow in non-agricultural sectors of Gadag district

4.1.1 Source-wise growth rate of Institutional credit

It is evident from Table 4.1 that over the number of years i.e. 2004-05 to 2013-14, commercial banks have shown a compound growth rate of 18.93 per cent, 19.85 per cent and 12.76 per cent in Dharwad, Belgaum and Gadag districts respectively. On the other hand, RRBs growth rate revealed 19.85 per cent in Dharwad, 9.19 per cent in Belgaum and 20.51 per cent in Gadag, whereas, the growth rate for cooperative banks were 8.97 per cent, 11.34 per cent and 8.86 per cent in Dharwad, Belgaum and Gadag respectively. This shows that cooperative banks recorded the lowest growth rate in all the selected districts as compared with the other banks. Nonetheless, the growth rate for cooperative bank was insignificant in both Dharwad and Gadag.

4.1.2 Instability in source-wise flow of Institutional credit

The growth rate of the source-wise flow of Institutional credit could be judged by examining the instability index (Table 4.2) to ascertain the trends in the growth. The instability indices in the selected districts are thus presented.

Dharwad District

The instability was lowest for commercial banks and RRBs with indices of 7.47 and 7.16 respectively. However, the instability index has shown 119.32 in cooperatives during the period of study indicating that cooperative banks were the most vulnerable.

Belgaum District

Commercial banks revealed the least instability with an index of 9.83, while RRBs and cooperatives were almost at par with instability indices of 15.63 and 16.80 respectively.

Table 4.1: Source-wise growth rate of flow of institutional credit to agricultural and non-agricultural sectors in selected districts (2004-05 to 2013-14)

Agency	Compound growth rate (CGR %)		
	Dharwad	Belgaum	Gadag
Commercial Banks	18.93 ^{**}	19.85 ^{**}	12.76 [*]
RRBs	19.85 ^{**}	9.19 [*]	20.51 ^{**}
Cooperatives	8.97	11.34 ^{**}	8.86

(** - 1% level and * - 5% level of significance)

Table 4.2: Source-wise instability of flow of institutional credit to agricultural and non-agricultural sectors in selected districts (2004-05 to 2013-14)

Agency	Instability index		
	Dharwad	Belgaum	Gadag
Commercial Banks	7.47	9.83	27.23
RRBs	7.16	15.63	16.34
Cooperatives	119.32	16.80	45.77

Gadag District

The instability index in RRBs was 16.34 whereas, commercial bank has shown relatively higher instability index of 27.23. On the other hand, cooperative banks have shown an instability of 45.77 which was highest in the district

4.1.3 Distribution of Institutional credit

The theme of this section is to study the purpose-wise distributional flow of institutional credit in the selected districts. In order to effectively achieve this, the flow of credit to the priority sector has only been considered for the period of 2004-05 to 2013-14 in the selected districts.

The crop loan and the total agricultural credit were subjected to compound growth rate and the mean of the credit disbursed together with the percentages (see appendix) were determined. Similarly, the SSIs loans and the total non-agricultural term loan were subjected to the same in order to assess the status of this credit flow in the various districts for the time period selected.

4.1.3.1 Distribution of credit flow in TPS of Belgaum District

The growth in Total Priority Sector (TPS) advances is presented in Table 4.3. In the case of disbursement over the years, positive growth was noticed across the TPS. With respect to agricultural credit, the compound growth rate during the period of 2004-05 to 2013-14 stood at 17.65 per cent, non-agricultural credit growth rate stood at 17.26 per cent, the growth rate of other priority sector (OPS) was 16.89 per cent and allied sector growth stood at 15.01 per cent during the same period.

In terms of percentages (see appendix 1), the term agricultural credit was contributing the largest share to the TPS with 67.45 per cent in 2004-05 and grew steadily over the years until it declined in 2013-14 to 57.82 per cent. Other priority sector (OPS) has the second largest share in the TPS with a percentage of 24.88 per cent in 2004-05 to 32.19 per cent in 2013-14. The percentage share of NFS had picked from 5.36 per cent in 2004-05, though, it was erratic in the contribution to percentage share, yet had increased to 5.91 per cent in 2013-14. Lastly, the allied sector of agriculture has the least per cent share with 2.31 per cent in 2004-05 to 4.08 per cent in 2013-14, however ranged between 1.49 per cent and 4.08 per cent across the study period.

4.1.3.2 Distribution of credit flow in TPS of Dharwad district

The growth in the disbursement of credit flow within the TPS in Dharwad district is highlighted in Table 4.3. In case of disbursement of credit to TPS, positive and high growth rates were noticed across the TPS as in the case of Belgaum district. The growth rate for agriculture and its allied were 25.96 per cent and 33.52 per cent respectively. While the non-agricultural sector (NFS) and other sector of non-agricultural credit (OPS) has a growth rate of 18.78 per cent and 14.78 per cent respectively over the selected period. Furthermore, the TPS growth also follows a similar trend with a growth of 19.92 per cent.

In terms of percentage share of disbursement of credit in the TPS, the OPS was leading initially with 53.03 per cent (2004-05) (see appendix 2) but decreased to 38.83 per cent (2013-14). On the contrary, agricultural credit had increased from 31.48 per cent to 46.57 per cent during the same period. Similarly, the allied credit increased from 2.30 per cent to 4.09 per cent whereas the non-agricultural credit (NFS) had decreased from 13.19 per cent to 10.51 per cent during the same period.

4.1.3.3 Distribution of credit flow to TPS in Gadag District.

The growth in total priority sector (TPS) is presented in table 4.3. In the case of disbursement of credit in TPS over the selected period, a positive and significant growth was noticed across the TPS. With respect to agriculture credit, it registered the highest growth rate of 22.70 per cent, followed by OPS which stood at 16.94 per cent and next to it was allied sector with a growth rate of 15.88 per cent, whereas, the NFS has the least growth rate of 8.37 per cent as compared with others within the TPS during the selected period

In respect of percentage share of disbursement (see appendix 3), again agriculture has the largest percentage share which rose from 62 percent (2004-05) to 70.86 per cent (2013-14). This was followed by OPS from 22.04 per cent (2004-05) to 21.22 per cent (2013-14) whereas, allied sector and NFS has shown a decrease in percentage share from 7.41 per cent to 4.77 per cent and 8.55 per cent to 3.15 per cent respectively during the same period.

Table 4.3: Distribution of credit flow to total priority sector (TPS) in selected Districts (2004-05 to 2013-14)

(Rs. In Lakh)

Districts	Tools	Agriculture	NFS	OPS	Allied	TPS
Belgaum	Mean	149.11	13.44	55.93	5.35	223.83
	CGR (%)	17.65 ^{**}	17.26 ^{**}	16.89 ^{**}	15.01 ^{**}	16.81 ^{**}
Dharwad	Mean	47.65	12.29	49.25	3.44	112.64
	CGR (%)	25.96 ^{**}	33.52 ^{**}	18.78 ^{**}	14.78 ^{**}	19.92 [*]
Gadag	Mean	36.33	1.90	9.98	3.10	51.31
	CGR (%)	22.70 ^{**}	8.38 ^{**}	8.37 ^{**}	16.94 ^{**}	20.56 ^{**}

Note: (**- 1% level and *-5% level of significance)

4.1.3.4 Comparison in the distribution of credit flow to TPS in selected districts

A comparative analysis of distribution of credit flow to TPS shows that agricultural credit for the period of 2004-05 to 2013-14 is highest in Belgaum district with a mean of Rs. 149.11 lakh, this is followed by Dharwad district with a mean of Rs. 47.65 lakh for agricultural credit which was higher than the mean of agricultural credit in Gadag Rs. 36.33 lakh. A similar trend was found across the sector with Belgaum having the highest mean in the allied, NFS, OPS and TPS with Rs. 5.35 lakhs, Rs. 13.44 lakhs, Rs. 55.93 lakhs and Rs. 223.83 lakhs respectively. This was followed by Dharwad having the mean of credit flow during the same period of Rs. 3.44 lakhs, Rs. 12.29 lakhs, Rs. 49.25 lakhs and Rs. 112.64 lakhs in the allied, NFS, OPS and TPS respectively. However, Gadag has the least mean distribution of credit flow across the sectors with Rs. 3.10 lakhs, Rs. 1.90 lakhs, Rs. 9.98 lakhs and Rs. 51.31 lakhs respectively within the same sector during the same period.

4.1.3.5 Distribution of credit flow in agricultural sector of Belgaum district

The agricultural credit disbursement in Belgaum is presented in table 4.4. It is noticed that the entire term loan showed a positive growth, with crop loan having the highest growth rate of 18.85 per cent, followed by Farm mechanization with growth rate of 13.29 per cent; others were micro irrigation and plantation/horticulture with growth rates of 9.02 per cent and 10.92 per cent respectively. However, land development has a growth rate of 11.81 per cent but was not significant.

The crop loan has the largest share in terms of percentage to the total agriculture term loan and it was 79.69 per cent in 2004-05 to 81.61 per cent in 2013-14 (see appendix 4). While the crop loan to TPS was still able to cart away about 53.75 per cent of the share in 2004-05 to a drop of 47.19 in 2013-14. This showing, crop loan itself is covering about half of the loan disbursed in the TPS. Farm mechanization, micro irrigation and plantation/horticulture decreased in their share in term loan from 8.02 per cent, 7.62 per cent and 2.08 per cent (2004-05) to 6.28 per cent, 6.76 per cent and 1.77 per cent (2013-14) respectively, whereas, the share of land development was increased from 0.93 per cent to 2.80 per cent during the same periods.

4.1.3.6 Distribution of credit flow in agricultural sector of Dharwad district

Table 4.4 highlighted the growth in distribution of agricultural credit in Dharwad. The growth within the agricultural credit showed a very high and positive growth rates across the sector. The growth rates were 26.88 per cent, 25.18 per cent, 43.95 per cent, 19.78 per cent and 27.29 per cent for crop loan, micro irrigation, land development, farm mechanization and plantation/horticulture respectively.

Table 4.4: Distribution of agricultural credit in selected Districts (2004-05 to 2013-14)

With respect to percentage in the actual disbursement of credit, crop loan has the largest share in percentage with 74.93 per cent (2004-05) (see appendix 5) which increased to 82.34 per cent (2013-14), next comes farm mechanization which decreased from 11.09 per cent (2004-05) to 8.42 per cent (2013-14). Others like micro irrigation, land development and plantation horticulture had increased in their percentage share from 1.06 per cent to 1.83 per cent, 0.69 per cent to 2.09 per cent and 0.84 per cent to 1.70 per cent respectively during the same periods. Other agricultural credit had a very unstable trends in the percentage share across the time period with a share as high as 11.39 per cent in 2004-05 to finally a decline of 3.62 per cent in 2013-14.

4.1.3.7 Distribution of credit flow in agricultural sector of Gadag district

The growth in agricultural credit in Gadag district was presented in Table 4.4. The results revealed that there was a significant and positive growth across the agricultural credit flow and the growth rates were 22.17 per cent, 32.31 per cent, 22.55 per cent, 10.83 per cent and 21.44 per cent for crop loan, micro irrigation, land development, farm mechanization and plantation/horticulture respectively. Thus, the overall growth rate in agricultural credit stood at 22.70 per cent.

The crop loan has the largest percentage share with respect to the total agricultural credit (see appendix 6) and it had increased from 68.35 per cent (2004-05) to 82.05 per cent (2013-14) while it was followed by farm mechanization which had decreased over the same period with a share of 20.15 per cent to 6.50 per cent. However, there was an increase in the magnitude of credit flow to farm mechanization in the later years. Subsequently, micro irrigation, plantation/horticulture had increased in their percentage share from 1.47 per cent to 3.52 per cent and 2.53 per cent to 2.87 per cent respectively during the same period. Whereas, land development had noticed a slight decline in its percentage share from 1.65 per cent to 1.64 per cent over the same period. Other agricultural

Table 4.4: Distribution of agricultural credit in selected Districts (2004-05 to 2013-14)

(Rs. In Lakh)

Districts	Tools	Crop loan	Micro Irrigation	Land Development	Farm Mech.	Plantation Horticulture	Other agri	Agriculture
Belgaum	Mean	117.42	8.75	3.12	10.79	2.88	3.35	149.11
	CGR (%)	18.85 ^{**}	9.02 ^{**}	11.81	13.29 ^{**}	10.92 ^{**}	21.03 [*]	17.65 ^{**}
Dharwad	Mean	37.73	0.77	0.96	5.72	0.74	1.73	47.65
	CGR (%)	26.88 ^{**}	25.18 ^{**}	43.95 ^{**}	19.78 ^{**}	27.29 ^{**}	30.68 [*]	25.96 ^{**}
Gadag	Mean	27.64	0.97	0.44	3.38	0.94	2.95	36.33
	CGR (%)	22.17 [*]	32.31 [*]	22.55 ^{**}	10.83 ^{**}	21.44 ^{**}	50.62 [*]	22.70 ^{**}

Note: (**- 1% level and *-5% level of significance)

credit had followed an obvious unstable trend in the share of percentage to the total agricultural credit flow with a share of 5.85 per cent (2004-05) to a decrease of 2.68 per cent (2007-08) and interestingly rose sharply to 8.40 per cent (2008-09) and continued to increase but, was finally dropped to 3.42 per cent (2013-14).

4.1.3.8 Comparison in the distribution of credit flow to agricultural sector in selected districts

It was found that that the mean of disbursement of crop loan in Belgaum was highest during 2004-05 to 2013-14 with a mean of Rs. 117.42 lakhs and the same trend goes across Belgaum districts with highest mean in micro irrigation, land development, farm mechanization, plantation/horticulture, and other agri sectors with mean of Rs. 8.75 lakhs, Rs. 3.12 lakhs, Rs. 10.79 lakhs, Rs. 2.88 lakhs, Rs. 3.35 lakhs respectively. This was followed by Dharwad district having higher edge in disbursement of credit in agricultural sector over Gadag district but, was much smaller in comparison with Belgaum district. The mean in the disbursement of credit is as follows Rs. 37.73 lakhs, Rs. 0.77 lakhs, Rs. 0.96 lakhs, Rs. 5.72 lakhs, Rs. 1.73 lakhs in crop loan, micro irrigation, land development, farm mechanization and other agri sectors respectively with the exception of plantation/horticulture with a little lower disbursement mean of Rs. 0.74 lakhs over what was found in Gadag district in the same sector. Gadag had the least mean in the disbursement of credit with mean of Rs. 27.64 lakhs, Rs. 0.94 lakhs, Rs. 0.44 lakhs, Rs. 3.38 lakhs, Rs. 0.94 lakhs, and Rs. 2.95 lakhs in crop loan, micro irrigation, land development, farm mechanization, plantation/horticulture, and other agri sectors respectively.

4.1.3.9 Distribution of credit flow in non-agricultural sector of Belgaum district

Table 4.5 represents the growth in disbursement pattern of credit for non-agricultural sector. The results revealed a positive and significant growth rate across the sector where the growth rates were 9.53 per cent, 17.65 per cent, 17.26 per cent, 16.87 per cent, 15.0 per cent and 16.81 per cent for handloom, tiny sector, village industries, rural artisans SSIs and non-farm miscellaneous respectively, of which tiny sector, village industries, rural artisans and non-farm miscellaneous were found to be highly significant.

With respect to percentage in share of disbursement of credit within the non-agricultural sector (see appendix 7), SSIs was found to have the largest share in percentage with a rise from 67.99 (2004-05) to 73.98 (2013-14), next comes the non-farm miscellaneous which was 13.98 per cent (2004-05) and increased to 14.71 per cent in (2013-14), others like rural artisans, village industries, handloom were decreased from 7.71 per cent to 4.09 per cent, 3.20 per cent to 2.21 per cent and 4.69 to 2.58 per cent during the same periods, with the exception of tiny sector which was 2.43 per cent (2004-05), increased in percentage share over the same period and finally was found to be same 2.43 per cent in 2013-14.

4.1.3.10 Distribution of non-agricultural credit in Dharwad district

Table 4.5 highlighted the growth of non-agricultural credit in Dharwad district. The growth in SSIs and rural artisans has shown very high and positive growth rates of 16.74 per cent and 29.26 per cent respectively. Whereas, village industries and non-farm sector has shown high but least significant growth of 25.83 per cent and 31.05 per cent respectively. However, the tiny sector has shown a positive high but non-significant growth rate of 13.69 per cent.

With respect to percentage share in the credit flow (see appendix 8), the SSIs has the highest percentage share over the period from 2004-05 to 2013-14 and it decreased slightly in the same period from 74.75 per cent to 72.75 per cent. The non-farm miscellaneous which followed next to SSIs, did not change much in the percentage share between 2004-05 to 2008-09 (19.18 per cent to 19.08 per cent) but increased sharply in 2009-10 (24.42 per cent) and was eventually decreased to 19.24 per cent in 2013-14. Others like tiny sector, village industries and rural artisans had increased the percentage share marginally from a share of 4.10 per cent to 4.96 per cent, 0.90 per cent to 1.65 per cent and 1.07 per cent to 1.40 per cent respectively during the same period.

4.1.3.11 Distribution of non-agricultural credit in Gadag district

Table 4.5 represents the growth in disbursement pattern of credit flow for non-agricultural sector. The results revealed a positive and significant growth for non-farm miscellaneous and rural artisans with growth rates of 11.65 per cent and 9.36 per cent respectively, whereas, tiny sector,

Table 4.5: Distribution of non-agricultural credit flow in selected districts

Districts	Tools	Tiny sector	Village industries	Rural artisans	SSIs	NF miscellaneous	NFS
Belgaum	Mean	0.48	0.36	0.62	9.26	2.26	13.44
	CGR (%)	17.65**	17.26**	16.87**	15.0*	15.34*	17.26**
Dharwad	Mean	0.41	0.23	0.27	8.90	2.48	12.29
	CGR (%)	13.69	25.83*	29.26**	16.74**	31.33**	18.78**
Gadag	Mean	0.05	0.02	0.13	0.98	0.71	1.89
	CGR (%)	8.79	10.54	9.36**	3.61	8.39	8.38**

Note: (**- 1% level and *-5% level of significance)

village industries and SSIs has shown a positive but non-significant growth of 8.79 per cent, 1.54 per cent and 3.61 per cent respectively.

With respect to percentage share in the flow of credit disbursement (see appendix 9), the SSIs has the largest percentage share of 55.30 per cent (2004-05) which decreased to 33.35 per cent (2013-14). This was seconded by non-farm miscellaneous which had shown a change of percentage share of 34.83 per cent (2004-05) to 54.65 per cent (2013-14). Tiny sector had decreased from 4.78 per cent to 2.93 per cent whereas; village industries and rural artisans had increased from 0.55 per cent to 2.17 per cent and 4.55 per cent to 6.90 per cent respectively during the same periods.

4.1.3.12 Comparison in the distribution of credit flow to non-agricultural sector in selected districts

It was found that that the mean of disbursement of SSIs in Belgaum was highest during 2004-05 to 2013-14 with a mean of Rs. 9.26 lakhs and the same trend goes across Belgaum districts with highest mean in NFS, tiny sector, village industries, and rural artisans with mean value of Rs. 13.44 lakhs, Rs. 0.48lakh, Rs. 0.36 lakh and Rs. 0.62 lakh respectively with the exception of non-farm miscellaneous of Rs. 2.26 lakhs which was marginally lower in value to the mean value of same in Dharwad district. This was followed by Dharwad district having higher edge in disbursement of credit to non-agricultural sector over Gadag district that had much smaller mean value in comparison with Dharwad district. The mean in the disbursement of credit in Dharwad are as follow Rs. 12.29 lakhs, Rs. 8.90 lakhs, Rs. 2.48 lakhs, Rs. 0.41 lakh, Rs. 0.23 lakh and Rs. 0.27lakh in NFS, SSIs, non-farm miscellaneous, tiny sector, village industries, and rural artisans respectively. Gadag had the least mean in the disbursement of credit to non-agricultural sector with mean value of Rs. 1.89 lakhs, Rs. 0.98 lakh, Rs. 0.71 lakh, Rs. 0.05 lakh, Rs. 0.02 lakh, and Rs.0.13lakh in NFS, SSIs, non-farm miscellaneous, tiny sector, village industries, and rural artisans respectively.

4.2 Factors influencing credit flow in the study area

The various factors that were presumed to be affecting the flow of Institutional credit based on the secondary data collected have been analysed using correlation and regression, and were reported as thus.

4.2.1 Relationship between factors influencing flow of institutional credit to agricultural sector

The correlation analysis was to measure the relationship between factors influencing flow of credit to agriculture and also assess the degree of this relationship.

Belgaum District

The results of correlation in Table 4.6 revealed that there was high correlation coefficient between agricultural credit and irrigation was (0.878), bank branches (0.905), deposit (0.961), literacy (0.924) and no of account (0.906); similarly, irrigation and literacy (0.884); bank branches and deposit (0.966), literacy (0.832) and number of accounts (0.918); deposit and literacy (0.832) and number of accounts (0.918); deposit and literacy (0.857), number of account (0.903); literacy and no of accounts (0.933). There was a moderately high correlation coefficient between irrigation and rain fall (0.671), bank branches (0.683), deposit (0.727), GCA (0.737) and number of accounts (0.756); Rainfall and land holdings (0.617), literacy (0.689), GCA (0.724); literacy and GCA (0.601). There was a very low correlation coefficient between agricultural credit and rainfall (0.308), deposit (0.323), no of accounts (0.490); Deposit and GCA (0.212); GCA and no of accounts (0.365). On the contrary negative and very low correlation coefficient exist between land holdings and literacy (-0.050), GCA (-0.116).

Dharwad District

Table 4.7 revealed that there were high correlation coefficients between agricultural credit and irrigation (0.923), deposit (0.975), literacy (0.948), number of accounts (0.898); Irrigation and deposit (0.827), literacy (0.929), number of accounts (0.8705); deposit and literacy (0.878), number of accounts (0.886); literacy and number of accounts (0.801). There was moderately high correlation coefficient between irrigation and bank branches (0.689); bank branches and literacy (0.604). However, there is a very low correlation coefficients between agricultural credit and land holdings (0.208), bank branches (0.437), GCA (0.151); irrigation GCA (0.412); land holdings and deposit (0.3532), number of accounts (0.250); bank branches and deposit (0.247), number of accounts (0.427) literacy and GCA (0.335). On the contrary, there exist negative correlation coefficients

Table 4.6: Correlation coefficients analysis of factors influencing flow of credit to agricultural sector in Belgaum District

	Agriculture	Irrigation	Rainfall	Landholdings	Bank Branches	Deposit	Literacy	GCA	No. of Accounts
Agriculture	1								
Irrigation	0.878**	1							
Rainfall	0.472	0.617	1						
Landholdings	0.031	0.031	0.617	1					
Bank Branches	0.905**	0.683*	0.309	0.024	1				
Deposit	0.961**	0.727	0.323	0.057	0.966**	1			
Literacy	0.924**	0.884**	0.689	-0.050	0.832**	0.857**	1		
GCA	0.418	0.737	0.724	-0.116	0.215	0.212	0.601	1	
No. of Accounts	0.906**	0.756	0.490	0.017	0.918**	0.903**	0.933**	0.365	1

Note - ** Significant at 1% level

Table 4.7: Correlation coefficients analysis of factors influencing flow of credit to agricultural sector in Dharwad District

	Agriculture	Irrigation	Rainfall	Land Holdings	Bank Branches	Deposit	Literacy	No. of Accounts	GCA
Agriculture	1								
Irrigation	0.923**	1							
Rainfall	-0.429	-0.375	1						
Land Holdings	0.208	-0.031	-0.654	1					
Bank Branches	0.437	0.689	-0.078	-0.297	1				
Deposit	0.975**	0.827**	-0.478	0.353	0.247	1			
Literacy	0.948**	0.929**	-0.306	0.030	0.604	0.878**	1		
No. of Accounts	0.898**	0.871**	-0.475	0.250	0.427	0.886**	0.801**	1	
GCA	0.151	0.412	-0.078	-0.554	0.611	0.005	0.335	0.063	1

Note - ** Significant at 1% level

between agriculture credit and rainfall (-0.429); irrigation and rainfall (-0.375); rainfall and land holdings (-0.654), deposit (-0.478), literacy (-0.306), number of accounts (-0.5).

Gadag district

The results in table 4.8 revealed there were high correlation coefficients between agricultural credit and bank branches (0.949), deposit (0.919), number of accounts (0.885); irrigation and bank branches (0.815), deposit (0.825), number of accounts (0.845); bank branches and deposit (0.958), number of accounts (0.960); deposit and literacy (0.831), number of accounts (0.953); literacy and number of accounts (0.907). There were moderately high correlation coefficients between agricultural credit and land holdings (0.785), irrigation (0.748), literacy (0.690); land holding and bank branches (0.629), deposit (0.689); bank branches and literacy (0.777). However, a low correlation coefficient could be noticed between irrigation and land holding (0.406), GCA (0.503); irrigation and literacy (0.346), number of accounts (0.210); land holdings and literacy (0.496), number of accounts (0.506); deposit and GCA (0.228); literacy and GCA (0.310). On the contrary, there exist negative correlation coefficients between agricultural credit and rainfall (-0.035); rainfall and land holdings (-0.055).

4.2.2 Relationship between factors influencing flow of institutional credit to non-agricultural sector

The correlation and degree of such relationships between factors influencing flow of credit to non-agricultural sectors under the selected districts are highlighted below.

Belgaum District

The results of analysis in Table 4.9 revealed that there high were correlation coefficient between non-agricultural credit and number of accounts (0.916), number of units of SSIs (0.843), non-agricultural lands (0.927), literacy (0.917), bank branches (0.938), deposit (0.972) employment (0.783); number of accounts and number of units of SSIs (0.882), non-agricultural land (0.915) literacy (0.923), bank branches (0.918), deposit (0.924) employment (0.793); number of units of SSIs and non-agricultural and (0.813), bank branches (0.968), deposit (0.876), employment (0.966); non-agricultural land and literacy (0.923), bank branches (0.915), deposit (0.968); literacy and bank branches (0.815), deposit (0.882); bank branches and deposit (0.963), employment (0.925); deposit and employment (0.806). There are however, moderately high correlation coefficients between number of units of SSIs and literacy (0.711); non-agricultural lands and employment (0.705); literacy and employment (0.587).

Dharwad district

The result in Table 4.10 revealed that there were high correlation coefficients between non-agricultural credit and number of units of SSIs (0.982), literacy (0.913), bank branches (0.922), deposit (0.961), number of accounts (0.907) employment (0.891); number of units of SSIs and literacy (0.918), bank branches (0.970), deposit (0.961), number of accounts (0.932), employment (0.887); literacy and bank branches (0.922), deposit (0.880), number of accounts (0.801), employment (0.768); bank branches and deposit (0.945), number of accounts (0.886), employment (0.865); deposit and number of accounts (0.888), employment (0.963); number of accounts and employment (0.824). On the contrary there were negative correlation coefficients between non-agricultural credit and non-agricultural land (-0.243); number of units of SSIs and land (-0.276); non-agricultural land and literacy (-0.312), bank branches (-0.269), deposit (-0.172), number of accounts (-0.237).

Gadag district

The results in Table 4.11 revealed there were high correlation coefficients between non-agricultural credit and bank branches (0.895), deposit (0.814), number of accounts (0.794); non-agricultural land and literacy (0.880); literacy and bank branches (0.777), deposit (0.831), employment (0.859), number of accounts (0.907); bank branches and deposit (0.958), employment (0.812), number of accounts (0.960); deposit and employment (0.871), number of accounts (0.953); employment and number of accounts. There is moderately high correlation coefficients between non-agricultural credit and employment (0.722), literacy (0.568); number of units of SSIs and literacy (0.696), bank branches (0.680) employment (0.639), number of accounts (0.699); non-agricultural land and employment (0.664), number of accounts (0.666); However, there are low correlation coefficients between non-agricultural credit and number of units of SSI (0.413); non-agricultural lands and bank branches (0.452), deposit (0.517).

Table 4.8: Correlation coefficients analysis of factors influencing flow of credit to agricultural sector in Gadag District

	Agriculture	Irrigation	Rainfall	Landholding	Bank Branches	Deposit	Literacy	GCA	No. of Accts
Agriculture	1								
Irrigation	0.7483	1							
Rainfall	-0.035	0.022	1						
Landholding	0.785**	0.406	-0.055	1					
Bank Branches	0.949**	0.815**	0.148	0.629	1				
Deposit	0.919**	0.825**	0.158	0.689	0.958**	1			
Literacy	0.690	0.774**	0.346	0.496	0.777**	0.831**	1		
GCA	0.090	0.503	0.175	0.185	0.116	0.228	0.310	1	
No. of Accts	0.885**	0.845**	0.210	0.586	0.960**	0.953**	0.907**	0.145	1

Note - ** Significant at 1% level

Table 4.9: Correlation coefficients analysis of factors influencing flow of credit to non-agricultural sector in Belgaum District

	NFS	No. of Accounts	Units SSI	Land	Literacy	Bank branches	Deposit	Employment
NFS	1							
No. of Accounts	0.916**	1						
Units SSI	0.843**	0.882**	1					
Land	0.927**	0.915**	0.813**	1				
Literacy	0.917**	0.923**	0.711	0.923**	1			
Bank branches	0.938**	0.9187**	0.968**	0.915**	0.815**	1		
Deposit	0.972**	0.924**	0.876**	0.968**	0.882**	0.93**	1	
Employment	0.783**	0.793**	0.966**	0.705	0.587	0.925**	0.806**	1

Note - ** Significant at 1% level

Table 4.10: Correlation coefficients analysis of factors influencing flow of credit to non-agricultural sector in Dharwad District

	NFS	Unit SSIs	Land	Literacy	Bank branches	Deposit	No .of Accounts	Employment
NFS	1							
Unit SSIs	0.982**	1						
Land	-0.243	-0.276	1					
Literacy	0.913**	0.918**	-0.312	1				
Bank branches	0.922**	0.970**	-0.269	0.922**	1			
Deposit	0.961**	0.961**	-0.172	0.880**	0.945**	1		
No. of Acts	0.907**	0.932**	-0.237	0.801**	0.886**	0.888**	1	
Employment	0.891**	0.887**	-0.051	0.768**	0.865**	0.963**	0.824**	1

Note - ** Significant at 1% level

Table 4.11: Correlation coefficients analysis of factors influencing flow of credit to non-agricultural sector in Gadag District

	NFS	Unit SSIs	Land	Literacy	Bank branches	Deposit	Employment	No. of Accounts
NFS	1							
Unit SSIs	0.413	1						
Land	0.190	0.462	1					
Literacy	0.568	0.696	0.880**	1				
Bank branches	0.895**	0.680	0.452	0.777**	1			
Deposit	0.814**	0.780**	0.517	0.831**	0.958**	1		
Employment	0.722	0.639	0.664	0.859**	0.812**	0.871**	1	
No. of Accounts	0.794**	0.699	0.666	0.907**	0.960**	0.953**	0.869**	1

Note - ** Significant at 1% level

4.2.3 Contribution of factors affecting flow of institutional credit to agricultural sector

In order to determine the pattern of relationship between one or more factors affecting flow of credit. Multiple regression analysis had been employed using stepwise regression to determine which factor(s) actually influenced or predict the flow of credit in each district.

Belgaum district

The result of the stepwise regression as shown in Table 4.12b further predicted the actual factors influencing the credit flow from the multiple regression Table 4.12a. It was revealed that deposit is the most influencing factor that determined the flow of agricultural credit in Belgaum district with coefficient of 1.21 which was significant at 1 per cent level and with coefficient of determination of 0.923. However, this was high as compared with irrigation, as the second factor influencing credit flow with a coefficient of 3.40 significant at 1 per cent level and a change in coefficient of determination to 0.992. This result made deposit and irrigation as the predictors in the model. On the contrary, land holdings, bank branches and literacy had negative coefficient with agricultural credit (table 4.12a).

Dharwad district

The result in Table 4.13b revealed that deposit was the most influencing factor that determined flow of institutional credit to agricultural sector in Dharwad district with a coefficient of 0.287 which is significant at 1 per cent level and a coefficient of determination of 0.951. This was seconded by irrigation having a coefficient of 40.308 at 1 per cent level of significance and a change in coefficient of determination to 0.994. The third factor was literacy with coefficient of 63258.26 significant at 1 per cent and a change in coefficient of determination to 0.997. It was inferred from the results that the predictors in the model were deposit, irrigation and literacy. On the contrary, land holdings, number of accounts, literacy and rainfall and GCA had negative coefficients with agricultural credit Table 4.13a.

Gadag district

The result of the stepwise regression as shown in Table 4.14b revealed that bank branches was the most influencing factor that determined the flow of agricultural credit in Gadag district with a beta coefficient of 138788.30 at 1 per cent level of significance with a coefficient of determination of 0.9010. This was followed by land holdings with a beta coefficient of 34.09 significant at 1 per cent level and a change in coefficient of determination to 0.959. However, there were negative coefficients in deposit, GCA and number of account (Table 4.14a). The predictors of this model were bank branches and land holding.

4.2.4 Contribution of factors affecting flow of institutional credit to non-agricultural sectors

Multiple regression was carried out along with stepwise regression model to determine the causal flow of credit to non-agricultural sectors as in the case with agricultural sector and the result of the predictions are presented thus

Belgaum district

The result in Table 4.15a revealed that deposit was the most influencing factor and the predictor that determine the flow of non-agricultural credit in Belgaum district with a beta coefficient of 1.472 at 1 percent level of significance and a coefficient of determination of 0.945. However, there were negative coefficients with non-agricultural credit in number of units of SSIs, non-agricultural land and employment and number of accounts (Table 4.15a).

Dharwad district

The result in Table 4.16b revealed that the most influencing factor determining the flow of credit to non-agricultural sector was number of units of SSIs with a beta coefficient of 285.49 significant at 1 percent and a coefficient of determination of 0.965. However, it was followed by bank branches with a negative coefficient of -11988.20 which was also significant at 1 percent level and a change in coefficient determination to 0.981. There is a negative coefficient in the number of accounts with non-agricultural credit (Table 4.16a). Thus, the predictors of this model were number of units of SSIs and bank branches.

Table 4.12a: Factors influencing flow of credit to agricultural sectors in Belgaum district (Multiple regression analysis)

Model	Coefficients	Std. Error	t-value	Sig.
(Constant)	3.39	4.37E+07	0.78	0.58
Irrigation	34.40	8.94	3.85 [*]	0.041
Rainfall	2794.94	5136.60	0.54 ^{NS}	0.683
Land holdings	-25.56	89.29	-0.29 ^{NS}	0.822
Bank branches	-69636.10	29828.149	-2.34 ^{NS}	0.258
Deposit	18.21	3.69	4.94 ^{**}	0.012
Literacy	-520514.00	476393.50	-1.09 ^{NS}	0.472
GCA	3.31	8.25	0.40 ^{NS}	0.757
Number of Accounts	33.52	21.84	1.54 ^{NS}	0.368

Note: **: Significance at 1% level *: Significance at 5% level NS: Non-significant
Dependent variable: Agricultural credit

Predictive equation for factors influencing flow of credit to agricultural sectors in Belgaum

Regression equation	r	R ²	SE	F	Sig
$Y = 3.39 + 34.40X_1^* + 2794.94X_2^{NS} - 25.56X_3^{NS} + 69636.10X_4^{NS} + 18.21X_5^{**} - 520514.00X_6^{NS} + 3.31X_7^{NS} + 33.52X_8^{NS}$	0.96	0.991	642829.69	119.876	0.071

Where,

- X_1 - Irrigation X_6 - Literacy
 X_2 - Rainfall X_7 - Gross cropped area (GCA)
 X_3 - Land holdings X_8 - Number of Accounts
 X_4 - Bank branches
 X_5 - Deposit

Table 4.12b: Contribution of factors affecting flow of credit to agricultural sector in Belgaum district (Stepwise regression models)

Model	Coefficients	Std. Error	t-value	Sig.	R ²
(Constant)	-1.07	1.70	-6.10	.000	0.992
Deposit	1.21	8.5E-01	1.40**	.000	
Irrigation	3.40	4.41	7.60**	.000	

Note: **: Significance at 1% level
Dependent variable: Agricultural credit

Selected variables along with R²

Deposit	Irrigation
Deposit	

R ²
0.992
0.923

Table 4.13a: Factors influencing flow of credit to agricultural sectors in Dharwad (Multiple regression analysis)

Model	Coefficients	Std. Error	t-value	Sig.
(Constant)	3.38	5.04E+07	0.67	0.624
Irrigation	35.56	35.33	1.07*	0.049
Rainfall	-700.82	1561.31	-0.49	0.731
Land Holdings	-95.86	135.16	-0.71	0.607
Bank Branches	11601.61	13998.85	0.83	0.559
Deposit	0.39	0.14	2.78**	0.021
Literacy	12449.42	69446.47	0.19	0.887
Number of Accounts	-8.42	7.39	-1.14	0.459
GCA	-8.88	8.33	-1.06	0.48

Note: **: Significance at 1% level *: Significance at 5% level NS: Non-significant
Dependent variable: Agricultural credit

Predictive equation for factors influencing flow of credit to agricultural sectors in Dharwad

Regression equation	r	R ²	SE	F	Sig
$Y = 3.38 + 35.56X_1^* - 700.82X_2^{NS} - 95.86X_3^{NS} + 11601.61X_4^{NS} + 0.39X_5^{**} - 12449.42X_6^{NS} - 8.417X_7^{NS} - 8.88X_8^{NS}$	0.86	0.992	283616.599	135.055	0.052

Where,

- | | |
|--------------------------------|---|
| X ₁ - Irrigation | X ₆ - Literacy |
| X ₂ - Rainfall | X ₇ - Number of Accounts |
| X ₃ - Land holdings | X ₈ - Gross cropped area (GCA) |
| X ₄ - Bank branches | |
| X ₅ - Deposit | |

Table 4.13b: Contribution of factors influencing flow of credit to agricultural sectors in Dharwad (Stepwise regression models)

Model	Coefficients	Std. Error	t-value	Sig.	R ²
(Constant)	-5172000	1048000	-4.937	0.003	.997
Deposit	0.287	0.022	12.996	0.000	
Irrigation	40.308	9.513	4.237	0.005	
Literacy	63258.26	25683.45	2.463	0.049	

Note: **: Significance at 1% level *: Significance at 5% level
Dependent variable: Agricultural credit

Selected variables along with R²

Deposit	Irrigation	Literacy
Deposit	Irrigation	
Deposit		

R ²
.997
.994
.951

**Table 4.14a: Factors influencing flow of credit to agricultural sectors in Gadag district
(Multiple regression analysis)**

Model	Coefficients(a)	Std. error	t-value	Sig.
(Constant)	-6.37	2.90E+07	-2.19	0.272
Irrigation	93.16	67.87	1.37	0.401
Rainfall	108.58	2315.06	0.05	0.097
Land holdings	49.17	18.79	2.62**	0.023
Bank Branches	279771.40	114881.40	2.45**	0.024
Deposit	-0.74	18.54	-0.04	0.097
Literacy	485083.70	387663.50	1.25	0.402
GCA	-20.38	13.97	-1.46	0.382
Number of Accounts	-16.77	11.57	-1.45**	0.038

Note: **: Significance at 1% level *: Significance at 5% level NS: Non-significant
Dependent variable: Agricultural credit

**Predictive equation for factors influencing flow of credit to agricultural sectors
in Gadag**

Regression equation	r	R ²	SE	F	Sig
$Y = -6.37 + 93.16X_1^* + 108.58X_2^{NS} + 49.17X_3^{NS} + 279771.40X_4^{NS} - 0.74X_5^{**} + 485083.70X_6^{NS} - 20.38X_7^{NS} - 16.77X_8^{NS}$	0.83	0.994	614125.357	20.465	0.039

Where,

- | | |
|--------------------------------|---|
| X ₁ - Irrigation | X ₆ - Literacy |
| X ₂ - Rainfall | X ₇ - Gross cropped area (GCA) |
| X ₃ - Land holdings | X ₈ - Number of Accounts |
| X ₄ - Bank branches | |
| X ₅ - Deposit | |

Table 4.14b: Contribution of factors affecting flow of credit to agricultural sectors in Gadag district (Stepwise regression models)

Model	Coefficients(a)	Std. Error	t-value	Sig.	R ²
(Constant)	-2.56	3.43E+06	-7.48	0.000	.960
Bank Branches	138788.30	18030.16	7.70**	0.000	
Landholdings	34.09	10.69	3.18**	0.015	

Note: **: Significance at 1% level *: Significance at 5% level
Dependent variable: Agricultural credit

Selected variables along with R²

Bank Branches	Landholdings
Bank Branches	

R ²
.960
.901

Table 4.15a: Factors influencing flow of credit to non-agricultural sectors in Belgaum (Multiple regression analysis)

Model	Coefficients	Std. Error	t-value	Sig.
(Constant)	2.88	3.49E+07	8.24	0.014
Number of Accounts	-1.19	1.434	-0.83 ^{NS}	0.492
Unit of SSIs	-931.18	315.31	-2.95 ^{NS}	0.098
Non-agricultural Land	-2666.98	326.52	-8.17 ^{**}	0.015
Literacy	86957.71	14863.36	5.85 ^{**}	0.028
Bank branches	26151.14	7595.62	3.44 ^{NS}	0.075
Deposit	1.13	0.26	4.35 [*]	0.049
Employment	-102.93	59.17	-1.74 ^{NS}	0.224

Note: **: Significance at 1% level *: Significance at 5% level NS: Non-significant
Dependent variable: Non-agricultural credit

Predictive equation for factors influencing flow of credit to non-agricultural sectors in Belgaum

Regression equation	r	R ²	SE	F	Sig
$Y = 2.88 - 1.19X_1^* - 931.18X_2^{NS} - 2666.98X_3^{**} + 86957.71X_4^{**} + 26151.14X_5^{NS} + 1.13X_6^* - 102.93X_7^{NS}$	0.76	0.999	30597.22	525.85	0.002

Where,

- X_1 - Number of Accounts X_6 - Deposit
 X_2 - Unit of SSIs X_7 - Employment
 X_3 - Non-agricultural Land
 X_4 - Literacy
 X_5 - Bank branches

Table 4.15b: Contribution of factors affecting flow of credit to non-agricultural sectors Belgaum district (stepwise regression)

Model	Coefficients	Std. Error	t-value	Sig.	R ²
(Constant)	222123.9	107431.20	2.068	0.072	.945
Deposit	1.472	0.13	11.72**	.000	

Note: **: Significance at 1% level
Dependent variable: Non-agricultural credit

Selected variables along with R²

Deposit

R ²
.945

Table 4.16a: Factors influencing flow of credit to non-agricultural sectors in Dharwad district (Multiple regression analysis)

Model	Coefficients(a)	Std. Error	t-value	Sig.
(Constant)	725141.40	696068.90	1.042	0.407
Unit of SSIs	240.03	47.35	5.07**	0.037
Land	4.15	8.44	0.49	0.672
Literacy	10382.64	8152.60	1.27**	0.031
Bank branches	-16922.00	3717.93	-4.55*	0.045
Deposit	0.05	0.03	1.99	0.184
Number of Accounts	-1.16	1.52	-0.76	0.525
Employment	-121.88	120.01	-1.01	0.417

Predictive equation for factors influencing flow of credit to non-agricultural sectors in Dharwad

Regression equation	r	R ²	SE	F	Sig
$Y = 725141.40 + 240.03^{**} + 4.15X_2^{NS} + 10382.64X_3^{**} + 16922.00X_4^{*} + 0.05X_5^{NS} - 1.16X_6^{NS} - 121.88X_7^{NS}$	0.88	0.996	66650.485	108.575	0.009

Note: **: Significance at 1% level *: Significance at 5% level NS: Non-significant
Dependent variable: Non-agricultural credit

Where,

- X_1 - Unit of SSIs X_6 - Number of Accounts
 X_2 - Non-agricultural Land X_7 - Employment
 X_3 - Literacy
 X_4 - Bank branches
 X_5 - Deposit

Table 4.16b: Contribution of factors affecting flow of credit to non-agricultural sectors in Dharwad district (Stepwise regression models)

Model	Coefficients	Std. Error	t-value	Sig.	R ²
(Constant)	-204953.00	614738.2	-0.33	0.749	.981
Unit of SSIs	285.49	40.65	7.02	0.000	
Bank branches	-11988.20	4837.33	-2.48	0.042	

Note: **: Significance at 1% level
Dependent variable: Non-agricultural credit

Selected variables along with R²

Unit of SSIs	Bank branches
Unit of SSIs	

R ²
.981
.965

Table 4.17a: Factors influencing flow of credit to non-agricultural sectors in Gadag district (Multiple regression analysis)

Model	Coefficients	Std. Error	t-value	Sig.
(Constant)	4.40	3.49E+07	1.26	0.335
Units SSIs	-261.78	175.28	-1.49**	0.027
Non-agricultural Land	-2057.30	1593.39	-1.29	0.326
Literacy	18259.58	14197.43	1.28	0.327
Bank branches	6692.32	4889.56	1.37**	0.030
Deposit	-0.42	0.97	-0.43	0.707
Employment	153.76	147.67	1.04	0.407
Number of Accounts	-0.16	0.31	-0.51	0.659

Predictive equation for factors influencing flow of credit to non-agricultural sectors in Gadag

Regression equation	r	R ²	SE	F	Sig
$Y = 4.40 - 261.78X_1^{**} - 2057.30X_2^{NS} + 18259.58X_3^{NS} + 6692.32X_4^{**} - 0.42X_5^{NS} + 153.76X_6^{NS} - 0.16X_7^{NS}$	0.76	0.967	25346.167	8.285	0.102

Note: **: Significance at 1% level *: Significance at 5% level NS: Non-significant
Dependent variable: Non-agricultural credit

Where,

- X_1 - Unit of SSIs X_6 - Employment
 X_2 - Non-agricultural Land X_7 - Number of Accounts
 X_3 - Literacy
 X_4 - Bank branches
 X_5 - Deposit

Table 4.17b: Contribution of factors influencing flow of credit to non-agricultural sectors in Gadag district (Stepwise regression models)

Model	Coefficients	Std. Error	t-value	Sig.	R ²
(Constant)	-265076	81990.04	-3.23	0.012	.802
Bank branches	4109.309	722.32	5.69	0.000	

Note: **: Significance at 1% level
Dependent variable: Non-agricultural credit

Selected variables along with R²

Bank branches

R ²
.802

Gadag district

The result in Table 4.17b revealed that bank branches was the most influencing factor that determined the flow of non-agricultural credit in Gadag district. The coefficient was 4109.309 at 1 per cent level of significance and a coefficient of determination of 0.8018. On the contrary, the other factors had a negative coefficient with non-agricultural credit with the exception of deposit, literacy and employment (Table 4.17a). Hence, the predictor of the model was bank branches.

4.3 Recovery performance of agricultural and non-agricultural credit

The extent of recovery could not be determined as stated in the objective based on the limitation of the variables in the data collected, containing some lagged variable. However, the percentage of the contribution of each sectors to the total outstanding of both agricultural and non-agricultural sectors were determined using discriminant analysis.

It is apparent from the results that there seemed to exist poor recovery more in agricultural sector than was in non-agricultural sectors. The result follows thus.

4.3.1 District wise contribution of credit outstanding in agricultural and non-agricultural sectors

The discriminant analysis was employed to analyse the differences that exist in the contribution to the total outstanding in both sectors. The period of selection was the same as that of the study i.e. during 2004-05 to 2013-14. The results are presented as thus:

Table 4.18 revealed that the mean difference of agricultural credit outstanding in Belgaum to be 0.3604 which was significant at 1 per cent level. Similarly, the mean difference for non-agricultural credit outstanding was 0.4566 significant at 1 per cent level. The percentage relative contribution revealed that agricultural sector had contributed 67.42 per cent to the total outstanding for the period selected while non-agricultural sector had a share of 32.58 per cent.

The result in Table 4.19 revealed that the mean difference of agricultural credit outstanding to Dharwad was found to be 0.248 while that of non-agricultural credit outstanding was 0.263 both at 1 per cent level of significance. The percentage relative contribution revealed that agricultural sector credit outstanding stood at 63.83 out of the total credit outstanding whereas, non-agricultural sector credit outstanding had a share of 36.17 over the selected period.

The result in Table 4.20 revealed that the mean difference of agricultural credit outstanding in Gadag was 0.279 while that of non-agricultural credit outstanding was found to be 0.539 in which both were significant at 1 per cent level. The percentage relative contribution revealed that agricultural sector credit outstanding stood at 62.95 per cent out of the total credit outstanding whereas, non-agricultural sector credit outstanding had a share of 37.03 per cent over the selected period.

4.4. The constraints in the flow of and recovery of credit

The problems that were usually encountered in the flow and recovery of credit were obtained by personal interview of bank officials most especially the senior cadre in each of the district. A total number of eight officials were interviewed from all the districts in order to elicit the constraints in the flow and recovery of credit. The inference was drawn by dividing the total responses into constraints that influence the flow and constraints that influence the recovery of credit. The frequency and the percentage of the response were presented in Table 21. It had appeared that all the districts were faced with similar constraints. The low and unequal number of the people interviewed could not allow for the results to be differentiated district wise. The results are however highlighted as thus:

4.4.1 Constraints in the flow of institutional credit

The constraints under this section were elicited based on the responses of the people interviewed, that is, the constraints that hinders the flow of credit.

- Timelines of credit supply
- Inadequate information on the background of the borrowers
- Unnecessary Government interference in banking operations
- Profitability and viability of credit institutions

Table 4.18: Percentage contribution of individual characteristics to the total outstanding in Belgaum

Sl. No.	Variable	Mean (di)	coefficients (li)	Contribution (li*di)	% relative contribution
1	Agriculture	0.360436	1.494	0.538492* (6.743)	67.41576
2	Non-agriculture	0.456615	0.57	0.260271* (2.310)	32.58424
	Total			0.798762	100

Figure given in the parentheses are the calculated 't' values.

* Indicates significant at 1 per cent level.

Table 4.19: Percentage contribution of individual characteristics to the total outstanding in Dharwad

Sl. No.	Variable	Mean (di)	coefficients (li)	Contribution (li*di)	% contribution
1	Agriculture	0.248	0.670	0.16616* (8.826)	63.83
2	Non-agriculture	0.263	0.358	0.09415* (4.423)	36.17
	Total			0.26031	100

Figure given in the parentheses are the calculated 't' values.

* Indicates significant at 1 per cent level.

Table 4.20: Percentage contribution of individual characteristics to the total outstanding in Gadag

Sl. No.	Variable	Mean (di)	coefficients (li)	Contribution (li*di)	% contribution
1	Agriculture	0.279	1.887	0.526473* (6.952)	62.95
2	Non-agriculture	0.539	0.575	0.309925* (1.875)	37.05
	Total			0.836398	100

Figure given in the parentheses are the calculated 't' values.

* Indicates significant at 1 per cent level.

Table 4.21: Constraints in the flow of credit

Sl. No.	Constraints particulars	Frequency	Percentage (%)
1	Timelines of credit supply	5	62.50
2	Inadequate information on the background of the borrowers	6	75.00
3	Unnecessary Government interference	3	37.50
4	Profitability and viability of credit institutions	2	25.00
5	Effectiveness on the identification of borrowers and assessment of borrower's potential by credit institutions.	1	12.50

Table 4.22: Constraints in the recovery of credit

Sl. No.	Constraints particulars	Frequency	Percentage (%)
1	Supervision and follow-up of borrowers	6	75.00
2	Misuse of loan amount by borrowers	7	87.50
3	Assistance to borrowers by granting extension	7	87.50
4	Lack of statutory power by the banks	4	50.00
5	Diversion of income generated out of investments	3	37.50
6	Unnecessary Government interference	3	37.50

- Effectiveness on the identification of borrowers and assessment of borrower's potential by credit institutions.

The percentage computed for the constraints elicited in the flow of credit as shown in Table 4.21 revealed that inadequate information on the background of the borrowers was having a total of 75 per cent, followed by timeliness of credit supply with a percentage of 62.50, unnecessary Government interference in banking operations had 37.5 per cent each indicating the percentage frequency of how often they were being mentioned. On the other hand, profitability/viability of credit institutions, and effectiveness on the identification of borrowers and assessment of borrower's potential by credit institutions had a total percentage frequency of 25 per cent and 12.5 per cent each respectively

4.4.2 Constraints in the recovery of institutional credit

The problems unmarked under this section were elicited based on the constraints that hinder the recovery of credit from the total of eight respondents that were interviewed.

- Supervision and follow-up of borrowers by lending institutions
- Misuse of loan amount by borrowers
- Assistance to borrowers by granting extension of time for repayment in cases of genuine problems
- Lack of statutory power by the banks
- Diversion of income generated out of investments by borrowers
- Unnecessary Government interference in banking operations

Under the constraints in the recovery of credit, misuse of loan by borrowers and assistance to borrowers by granting extension of time for repayment in cases of genuine problems had the highest percentage of 87.50 per cent each. This was followed by supervision / follow-up of borrowers by lending institutions with 75 per cent. The third position with respect to percentage was lack of statutory power by the banks having a total of 50 per cent. Lastly, under the constraints in the recovery of credit was diversion of income generated out of investments by borrowers and unnecessary government interference in banking operations had 37.5 per cent each indicating the percentage frequency of how often they were being mentioned.

In the overall, it was found out that the constraints in the recovery of credit were more in number than the constraints in the flow of credit with unnecessary government interference in banking operations appearing in the constraints both in the flow and recovery of credit.

DISCUSSION

The results of the study presented in the preceding chapter are discussed in this present chapter under the following heads.

- 5.1 Comparative flow of institutional credit in the study area
- 5.2 Factors influencing credit flow in each district of the study area
- 5.3 Recovery performance in both agricultural and non-agricultural sectors
- 5.4 Constraints in the flow and recovery of credit

5.1 Comparative flow of Institutional credit in the study area

5.1.1. Source-wise growth rate of institutional credit

In examining the growth of Institutional credit separately for Commercial banks, Rural Regional Banks (RRBs) and Cooperative banks. It is observed that commercial banks and RRBs grew at higher rate compared with cooperative banks (Table 4.1). This is mainly due to the government intervention mandating commercial banks to increase their credit flow to agriculture and weaker section within the priority sector. In April 1, 1997 after a review of the parliament, it was decided that the advances of RRBs to priority sector borrowers were to constitute 40 per cent of their outstanding advances, as in case of commercial bank. The level of achievements vis-à-vis the prescribed targets for lending to priority sector by RRBs, were later reviewed and decided based on performance, that RRBs should achieve a target of 60 per cent of their outstanding advances for priority sector lending as against 40 per cent. This progress since 2003-04 has made the growth of RRBs to be either at close par or beyond commercial banks in lending under priority sector.

However, the growth of RRBs at Belgaum district was lowest as compared with the other two banks in the district. This could be explained according to the study conducted by Shetti (2012), that there is low demand for credit in rural area of Belgaum district. The growth rate of the Cooperative banks of the districts were smaller as compared with RRBs and Commercial banks for Dharwad and Gadag districts which could be attributed to the lack of proper management, high handed politics and more importantly poor recoveries compounded the poor performance of cooperative banks. Otherwise, could have been a good source of credit flow because of its structure. This could be reinforced with the study conducted by Atteri *et al* (2007) on institutional credit flow and regional variation in outstanding loan in farm business in India depicting that among institutional agencies, the share of credit from Cooperative banks has decreased from 63 per cent to 28 per cent while that of Commercial banks increased from 30 per cent to 62 per cent during 1996- 06.

5.1.2 Instability in source-wise flow of institutional credit

The growth can be properly assessed by examining the instability index. A high instability in the source-wise flow of credit indicates that the market (bank) do not function well and are likely prone to failures at any time. The higher the instability index the higher the malfunctioning and vice-versa.

Dharwad district

The low instability indices as shown in Table 4.2 for RRBs and Commercial bank indicated that there is relative stability in the performance and functioning of these banks over the years. The growth in the in lending norm and activities had been relatively stable in Dharwad. On the contrary, there was a very high instability index for Cooperative banks which was attributed to lack of proper management that was always leading to the rise and fall in their activities.

Belgaum district

There was lower instability index in Commercial banks of the district as compared with RRBs and Cooperative bank which indicates the role of the banks in contributing positively to economic growth of the district. However the instability indexes for RRBs and cooperative banks further prove low demand for credit in the rural areas of Belgaum district, and could also signified imbalance deposit mobilization and credit deployment, most especially on the part of the cooperative banks according to study by Shiralshetti (2012).

Gadag District

The instability index was highest in Cooperative bank (Table 4.2) followed by Commercial banks and lastly by RRBs having the lowest instability index in the district. In reference to the growth rate, RRBs in Gadag had the highest growth rate as well as in comparison with other district. Hence, it could be drawn that credit was much needed in the rural district of Gadag than the urban areas. Moreover, Gadag could be classified as a developing district thus, having a higher percentage of rural to urban.

On the whole, among the three institutions examined under the priority sector lending, Commercial banks and RRBs exhibited a relatively stable and increased credit flow. In view of this, the study had supported the study conducted by Ramesh (2007) who stated that notwithstanding the wide network, Cooperative banks particularly since 1990s have lost their dominant position to commercial banks. Furthermore, his study revealed that the share of Cooperative banks from 22 per cent during 2005-06 was less than half of what it was in 1992-93 (62 per cent), while that of Commercial banks (rose from 33 per cent to 68 per cent) including RRBs (5 to 10 per cent) almost doubled during the above periods.

5.1.3 Distribution of institutional credit flow to TPS Belgaum

The analysis of distribution of institutional credit flow to agricultural and non-agricultural sectors under the total Priority Sector (TPS) lending are discussed below.

5.1.3.1 Distribution of institutional credit flow to TPS Belgaum district

The flow of institutional credit to the total Priority Sector (TPS) revealed that, agriculture was having the largest share of credit flow that was not less than 50 per cent at any time in the period of the years selected. This showed that agriculture is well thriving in the district and the efforts to increase the flow of credit to agriculture, seemed to have yielded better results in the recent period as the total institutional credit to agriculture recorded a growth of 17.65 per cent during 2004-05 to 2013-14 from little over 12 per cent during 1986-87 to 1994-95 in terms of total credit to agriculture in India, as claimed by the study of Ramesh (2008). However, this was followed by NFS with a growth rate 17.26 per cent, next to it was OPS with nothing less than growth rate of 16.89 per cent to the total credit flow which constitutes areas such as educational loan, housing loan, consumption loan, transport operator etc.

Contrary to a widely held view, non-agricultural sector had only less than 10 per cent in the share of institutional credit flow under the priority sector advance, despite the many support policies for SSIs implemented by the government since the 1950s and had asked Commercial banks to deliver financial services to the sector as part of the most vulnerable. The low percentage share in the credit flow could be attributed to the report of a study made by Pais (2004) that a large number of SSIs do not have formal accounts, hence may not have complete financial statement and more time is therefore required to evaluate their creditability. In addition, small enterprises may show relatively more volatility in the face of economic slowdown because they have less diversified products.

5.1.3.2 Distribution of institutional credit flow to TPS of Dharwad district

The result of distribution of institutional credit to TPS in Dharwad district as shown in Table 4.3 and appendix 2 revealed a scenario contrary to Belgaum district in term of lower mean value and percentage share as compared with the same. Here, the percentage contribution of agricultural credit to TPS was 31.48 percent (2004-05) and rose to 46.57 per cent (2013-14) with high significant growth rate of 25.96 per cent. Which showed that agriculture is well thriving in the district as well and efforts to increase credit flow to agriculture seemed to have yielded better results. However, the lower percentage share in comparison with Belgaum district could be attributed to higher literacy level that exists in Dharwad. This was followed by OPS with higher percentage share of 53.04 percent to a decrease of 38.83 percent (2013-14), the credit which covers educational loan, consumption loan, housing loan etc., further proved the existence of higher literacy level in the district. The non-farm sector (NFS) had increased significantly over the years with a growth rate of 18.78 per cent. Both in terms of percentage share and quantum of credit disbursed towards this sector had increased, thus indicating that growth of non-agricultural sector in Dharwad is an on-going concern. The allied sector of agriculture on the other hand, had shown support towards agricultural sector with an impressive growth rate of 33.52 per cent and an increase in the percentage share over the years selected.

5.1.3.3 Distribution of institutional credit flow to TPS in Gadag District

The result of institutional credit flow to TPS in Gadag district was shown in Table 4.3 and appendix 3. It could be observed that agriculture was having the largest share of credit flow that was more than 60 percent at any time during the period of the years selected which showed the handsome position of agriculture in the district. This could be because the major occupation of Gadag district is farming with less urban areas and more rural areas. In addition, the literacy level was much lesser as compared with Dharwad and Belgaum. However, this was followed by OPS as in the case with other districts with a significant growth rate of 16.94 per cent and increased in quantity of credit disbursed to the sector across the selected period. The allied sector which comprises of animal husbandry, piggyery, poultry etc. also had a very significant growth rate of 15.88 per cent with a persistent increase in the credit disbursed to that sector. The non-farm sector (NFS) had the lowest growth rate in the TPS of 8.37 per cent with slight fluctuations in the trend of the selected period which could be explained by the lesser number of non-farming or SSIs activities in that district.

5.1.3.4 Distribution of institutional credit flow to agricultural sector in Belgaum district

The agricultural credit which could also be referred to as the term loan / credit comprises of crop loan, micro irrigation, land development, farm mechanization and plantation horticulture loans out of which the crop loan shouldered the largest share up to 70 per cent and above. This showed that all other areas of agriculture are dependent on crop and furthermore, government has since approved a rehabilitation package for identified districts in certain states in which Karnataka was one of them. The package was to give subsidy / grants to agricultural sector of which the subsidy / grants for crop loan was usually separated and high as well (RBI, 2008). This was also indicated in the result of the growth rate of crop loan (Table 4.4 and appendix 4) which was the highest and significant at 18.85 per cent under agricultural credit. The share of credit flow to farm mechanization was next with an impressive growth rate of 13.29 per cent however, fluctuating trend could be observed in terms of loan which could be attributed to poor income generation caused sometimes by drought. Micro irrigation, land development and plantation, horticulture were neighbours in terms of growth rate with micro irrigation having an edge over the rest two in term of credit disbursed to that sector. It could be observed from the result that there were fluctuations in the trend which could be attributed to the seasonal variation in the climate, interest policy by the government and also the problems associated with loan recovery. The land development had a growth rate of 11.81 per cent but was not in the least significant and from observing the trend of flow of credit to it; one could observe that not much of consistent activities is taking place there; this is due to the problem of inelastic nature of land. On the other hand, plantation horticulture had shown a growth rate of 10.92 per cent which was highly significant with a consistency in growth of credit disbursement to that sector.

5.1.3.5 Distribution of institutional credit flow to agricultural sector in Dharwad district

The agricultural credit comprising of crop loan, micro irrigation, land development, farm mechanization and plantation horticulture as observed in Table 4.4 and appendix 5 revealed that crop loan was highest with a growth rate of 26.88 per cent both in percentage share and quantum of credit disbursed over the years. This was a commendation both on the part of the government for the subsidy/grant provided towards agricultural credit in TPS and a part for the institutions disbursing the loans. The agricultural credit across the term credit all showed impressive growth rates with land development having as high as 43.95 per cent, thus indicating that there is increase over the years on waste land development in the district. The growth rate of farm mechanization of 19.78 per cent and the increase in the quantum of credit disbursed across the years could be attributed to ever increasing of this industry in the district. Dharwad had been noted for having more industries that ranges from large, medium and small scale industries. Furthermore, micro irrigation and plantation/horticulture had significant growth rates of 25.18 per cent and 27.29 per cent respectively and could be clearly observed that both had an increasing trend in the quantity of credit disbursed across the years.

5.1.3.6 Distribution of institutional credit flow to agricultural sector in Gadag district

The agricultural credit comprising of crop loan, micro irrigation, land development, farm mechanization and plantation/horticulture as observed in Table 4.4 and appendix 6 revealed that crop loan was having the largest percentage share under agricultural credit in the district with a significant

growth rate of 22.17 per cent and a percentage share of 68.35 percent (2004-05) which grew to 82.05 per cent (2013-14), this is explained by the subsidy and various government support to agricultural credit especially crop loan. This is because agriculture is thriving well in the southern region of India, in which Karnataka is one of the prominent states among others. This was followed by farm mechanization with the high significant growth rate of 10.83 per cent in comparison with other sectors under agricultural credit. It was observed that there is a fluctuating trend in the pattern of credit flow between 2004-10, but an improvement was noticed in the quantity of credit disbursed from 2010-11 onwards which could be due to gradual urbanization and civilization taking place in the district. This had enhanced improvement in the development of improved tools and adopting technology for farming activities. Micro irrigation, land development and plantation/horticulture had followed a relative consistent pattern in credit disbursement towards that sector with growth rates of 32.31 per cent, 22.5 per cent and 21.44 per cent respectively. Thus, indicating that agriculture is the main business of Gadag district.

5.1.3.7 Distribution of institutional credit flow to non-agricultural sector in Belgaum district

The result of disbursement pattern of credit flow to non-agricultural sector as shown in Table 4.5 and appendix 7 revealed that SSIs had the largest percentage share under non-agricultural credit in Belgaum district up to the tune of 67.99 per cent (2004-05) which grew over the years to 73.99 per cent (2004-05) with a significant growth rate of 15.0 per cent depicting that Belgaum is a metropolitan city with lot of activities and businesses involving several SSIs. However, its share to the TPS was far much less as 3.64 per cent (2004-05) to 4.37 per cent (2013-14). It was followed by other non-farm miscellaneous with a slightly higher growth rate of 16.81 and a percentage share of 13.98 per cent which had declined over the years to 9.50 per cent (2013-14) with no definite activities. Rural artisans came third on the list in the disbursement of credit flow with a growth rate of 16.87 per cent but had declined in its percentage over the years, however it had increased significantly in term of quantum of loan disbursed across the period selected. Hand loom, tiny sector and village industries showed significant growth rates in the credit disbursed, although, a decline was observed in the percentage share across the years which could be attributed to increase in urbanization.

5.1.3.8 Distribution of institutional credit flow to non-agricultural sector in Dharwad district

The result of disbursement of pattern of credit flow to non-agricultural sector as shown in Table 4.5 and appendix 8 revealed that SSIs had the largest percentage share under non-agricultural credit in Dharwad district up to the tune of 74.75 per cent (2004-05) which grew over the years but, gradually decreasing in 2009-10, ending with a slight decrease to 72.75 per cent (2013-14) thus further proving Dharwad as having more industries as compared with the other two districts under discussion. It was followed by the non-farm miscellaneous with a higher growth rate of 31.05 per cent and a percentage change of 19.19 per cent which grew over the years and was finally decreasing from 2011-12 but not lower than its starting point. Village industries and rural artisans had shown significant growth rates of 25.83 per cent and 29.26 per cent respectively and had both increased in their small measure in term of quantity disbursed to them and also their percentage share during the period selected. On the contrary, the tiny sector had a growth rate of 13.69 per cent which was not significant at all. The growth of village industries and rural artisans was due to Dharwad district having more rural areas as compared with Belgaum.

5.1.3.9 Distribution of institutional credit flow to non-agricultural sector in Gadag district

The result in Table 4.5 and appendix 9 observed that the SSIs was highest in terms of credit disbursed and the percentage share under the non-agricultural credit. However, the growth rate revealed the lowest and non-significant growth of 3.61 per cent which could be attributed less urbanization and civilization that existed within the district for a very long time. It was followed by the other non-farm sector miscellaneous with significant growth rate of 11.65 per cent and increase in the percentage of credit flow disbursed to the sector. It was also observed that rural artisans was having a significant growth of 9.36 per cent and had shown an increase in the percentage share as well as in the quantity of credit disbursed towards that sector. Tiny sector and village industries had non-significant growth rate of 8.79 per cent and 10.54 per cent respectively. While tiny sector had shown non-significant increase along the trend, the village industries on the other hand had shown slight increase in the quantity and percentage share of credit flow. This could be attributed to, not because

of lack of this sector in the district but, rather because of ignorance on accessibility of credit or capacity to do so.

5.1.3.10 Comparison in the distribution of institutional credit flow to agricultural and non-agricultural sectors

The above analysis of results shows that the flow of institutional credit was more to agricultural sector than to non-agricultural sector. Contrary to the hypothesis and the study of Sahu and Rajasekhar (2005) which stated that the share of agricultural credit in total net bank credit was found to be declining especially after the reforms. However, was buttressed by the study of Singh and Nasir (2003) which reported that institutional credit flow to agriculture sector was found to be adequate and increasing.

5.2 Factors influencing institutional credit flow in the study area

The Pearson correlation coefficient (r), or correlation coefficient for short is a measure of the degree of linear relationship between two variables, usually labelled x and y . While in regression the emphasis is on predicting one variable from the other, in correlation, the emphasis is on the degree to which a linear model may describe the relationship between two variables. In regression, the interest is directional, one variable is predicted and the other is the predictor while in correlation the interest is non-directional, the relationship is the critical aspect. The relationships between factors influencing flow of credit to agricultural sector for the districts are discussed thus.

5.2.1 Factors influencing flow of credit to agricultural sector

The analysis of the correlation matrix revealed that more than half of the observed relationships were very strong. There were significantly high degree of relationships between agricultural credit and irrigation, bank branches, deposit, literacy and number of accounts which indicates that the supply of artificial water to foster plant growth could enhance production in case of adverse climatic hence, institutions avail credit when irrigation practices are put in place. Also, with the expansion of bank branches, the deposit increases and consequently the number of account openings are increased more, then, flow agricultural credit are more enhanced.

The literacy level of the people will enable them to access credit or not because some are ignorant of credit facilities available at their disposal while others thought the process is cumbersome without ever attempting. Similarly, there is strong correlation between irrigation and literacy which of course showed that a novice could not know the importance and systems of irrigation. The moderately high degree of correlations between rainfall and irrigation further revealed the state of the districts are not fully dependent on monsoons but had irrigation mechanisms which were to support rainfall.

Belgaum District

The results of correlation in Table 4.6 revealed that there were significantly high degree of relationships between agricultural credit and irrigation (0.878), bank branches (0.905), deposit (0.961), literacy (0.924) and no of account (0.906); similarly, irrigation and literacy (0.884); bank branches and deposit (0.966), literacy (0.832) and number of accounts (0.918); deposit and literacy (0.832) and number of accounts (0.918); deposit and literacy (0.857), number of account (0.9030); literacy and no of accounts (0.933). There was a moderate high degree of relationship between irrigation and rain fall (0.671), bank branches (0.683), deposit (0.727), GCA (0.737) and number of accounts (0.756); Rainfall and land holdings (0.617), literacy (0.689), GCA (0.724); literacy and GCA (0.601). There was a weak correlation between agricultural credit and rainfall (0.308), deposit (0.323), no of accounts (0.490); Deposit and GCA (0.212); GCA and no of accounts (0.365). On the contrary, negative and very weak correlation exists between land holdings and literacy (0.050), GCA (-0.116).

Dharwad District

The result of Table 4.7 revealed that there were significantly high degree of relationships between agricultural credit and irrigation (0.923), deposit (0.975), literacy (0.948), no. of farmers (0.898); Irrigation and deposit (0.827), literacy (0.929), number of accounts (0.871); deposit and literacy (0.878), number of accounts (0.886); literacy and number of accounts (0.801). There is a moderately high relationship between irrigation and bank branches (0.689); bank branches and literacy (0.604). However, there is a weak relationships between agricultural credit and land holdings (0.208), bank branches (0.437), GCA (0.151); irrigation GCA (0.412); land holdings and deposit (0.353), number of accounts (0.250); bank branches and deposit (0.247), number of accounts (0.427)

literacy and GCA (0.335). On the contrary, there exist negative relationships between agriculture credit and rainfall (-0.429); irrigation and rainfall (-0.375); rainfall and land holdings (-0.654), deposit (-0.478), literacy (-0.306), number of accounts (-0.475).

Gadag district

The results in table 4.8 revealed there were significantly high degree of relationships between agricultural credit and bank branches (0.949), deposit (0.919), number of accounts (0.885); irrigation and bank branches (0.815), deposit (0.825), number of accounts (0.845); bank branches and deposit (0.958), number of accounts (0.960); deposit and literacy (0.830), number of accounts (0.953); literacy and number of accounts (0.907). There is a moderately high significant relationship between agricultural credit and land holdings (0.785), irrigation (0.748), literacy (0.690); land holding and bank branches (0.629), deposit (0.689); bank branches and literacy (0.777). However, a weak relationship could be noticed between irrigation and land holding (0.406), GCA (0.503); irrigation and literacy (0.346), number of accounts (0.210); land holdings and literacy (0.496), number of accounts (0.506); deposit and GCA (0.228); literacy and GCA (0.310). On the contrary, there exist a negative and almost no relationship between agricultural credit and rainfall (-0.035); rainfall and land holdings (-0.055).

5.2.2 Factors influencing flow of institutional credit to non-agricultural sectors

The correlation of a particular variable with non-agricultural credit either positive or inverse is worth considerable for the selection. In this analysis, significant positive correlation was noticed with most of the variable. The non-agricultural credit had strong positive correlation with the number of account indicating that the increase in the account will consequently increase the bank deposit and this will in turn increase the volume of credit flow. Similarly, the significant correlation with number of units of SSIs had a positive effect on the number of account. An increase in the number of units of SSIs will increase the number of accounts. It was also found out that there is a strong correlation with non-agricultural land which clearly is an indicator for development and expansion of more units of SSIs. Also, the higher the literacy levels, the higher the level of awareness of availability of credit and how they can be assessed. The significant positive relationship with bank branches could invariably lead to a larger number of accounts and hence the volume of bank deposit increases. Moreover, the significant relationship with employment will give rise to savings and thereby increasing bank deposit.

However, there were negative relationships between non-agricultural credit and non-agricultural land in Dharwad which could indicate that the available non-agricultural land is not meant for expansion of units of SSIs. It could be for other purposes and this is also clearly reflected in the negative coefficient between the number of units of SSIs and non-agricultural land. There is a negative relationship between bank branches with deposit and number of accounts which could indicate that for Dharwad, there are enough bank branches to cover the main and suburbs therefore expansion of bank branches may decrease the amount of deposit in each branch and invariably the number of accounts.

Also, the weak relationship between non-agricultural credit and number of units of SSIs was noticed in Gadag which is an indicator that the number of units of SSIs in Gadag is smaller as compared with the other two districts and that minor activities exists in the SSIs of Gadag.

The relationships and extent of such between factors influencing flow of credit to non-agricultural sectors under the selected districts are highlighted below.

Belgaum District

The results of analysis in Table 4.9 revealed that there were significantly high degree of relationships between non-agricultural credit and number of accounts (0.916), number of units of SSIs (0.843), non-agricultural lands (0.927), literacy (0.917), bank branches (0.937), deposit (0.972) employment (0.783); number of accounts and number of units of SSIs (0.882), non-agricultural land (0.915) literacy (0.923), bank branches (0.918), deposit (0.924) employment (0.793); number of units of SSIs and non-agricultural and (0.813), bank branches (0.968), deposit (0.876), employment (0.966); non-agricultural land and literacy (0.923), bank branches (0.915), deposit (0.968); literacy and bank branches (0.815), deposit (0.882); bank branches and deposit (0.963), employment (0.925); deposit and employment (0.806).

There are however, a moderately high relationships between number of units of SSIs and literacy (0.710); land and employment (0.705); literacy and employment (0.587).

Dharwad district

The result in Table 4.10 revealed that there were significantly high degree of relationships between non-agricultural credit and number of units of SSIs (0.982), literacy (0.913), bank branches (0.922), deposit (0.961), number of accounts (0.907) employment (0.891); number of units of SSIs and literacy (0.918), bank branches (0.970), deposit (0.961), number of accounts (0.932), employment (0.887); literacy and bank branches (0.922), deposit (0.880), number of accounts (0.801), employment (0.768); bank branches and deposit (0.945), number of accounts (0.886), employment (0.865); deposit and number of accounts (0.888), employment (0.96341); number of accounts and employment (0.824). On the contrary there were negative relationships between non-agricultural credit and non-agricultural land (-0.243); number of units of SSIs and land (-0.276); non-agricultural land and literacy (-0.312), bank branches (-0.269), deposit (-0.172), number of accounts (-0.237).

Gadag district

The results in Table 4.11 revealed there were significantly high degree of relationships between non-agricultural credit and bank branches (0.895), deposit (0.814), number of accounts (0.794); non-agricultural land and literacy (0.880); literacy and bank branches (0.777), deposit (0.831), employment (0.859), number of accounts (0.907); bank branches and deposit (0.958), employment (0.812), number of accounts (0.960); deposit and employment (0.87127), number of accounts (0.953); employment and number of accounts. There is a moderately high relationship between non-agricultural credit and employment (0.722), literacy (0.568); number of units of SSIs and literacy (0.696), bank branches (0.680) employment (0.639), number of accounts (0.699); non-agricultural land and employment (0.664), number of accounts (0.666); However, there is weak relationships between non-agricultural credit and number of units of SSI (0.413); non-agricultural land and bank branches (0.452), deposit (0.517)

5.2.3 Contribution of factors affecting flow of credit to agricultural sectors

The flow of institutional credit is supposed to be associated with some social, economic, political and natural factors related to agriculture. The selection of variables was based on some *a priori* expectations so that these variables provide sufficient economic explanations. Irrigation is taken as a proxy for agricultural infrastructure; literacy variable represents the extent of development in the social circle. Both land holdings and GCA are taken as representations of technological advancement in agriculture, and rainfall is taken as proxy for climatic factor.

The network of banking infrastructure, bank deposit, and number of accounts are intuitively taken as a determining factor on quantum of credit flow. These factors exert their influence considerably on the flow of credit under a condition of availability of lendable resource from lending institutions.

Hence, the stepwise regression was conducted to evaluate which of the factor(s) were necessary to predict the flow of agricultural credit in the districts. The interpretation of the results for each district is as follows:

Belgaum district:

The prediction model contained two (2) of the eight (8) predictors and was reached in two steps with no further variables removed. The model was statistically significant and accounted for approximately 99 percent of the variance in agricultural credit ($R^2 = 0.992$, adjusted $R^2 = 0.989$). Agricultural credit flow in Belgaum was primarily predicted by deposit and irrigation. The raw and standardized regression coefficients of the predictors together with their value and coefficients of determination (R^2) value are shown in Table 4.12. Bank deposit received the strongest weight in the model followed by irrigation. The unique variance was explained each by their R^2 change.

Deposit explained the variance in agricultural credit up to 92.3 percent while irrigation accounted for 6.9 per cent of the variance in agricultural credit. This could be linked with the report of on achievements of water resources department that identified Belgaum district as one of the drought prone areas and has eve since deployed various irrigation projects which is still an on-going concern in the district.

Dharwad district

The situation was however slightly different in Dharwad district. The prediction model contained three of the eight predictors and was reached in three steps with no other variables added.

The model which was statistically significant accounted for almost 100 percent of the variance in the flow of agricultural credit in Dharwad ($R^2 = .997$, adjusted $R^2 = .995$). The flow of agricultural credit was primarily predicted by deposit, followed irrigation and to lesser extend by higher level of literacy. The unstandardized and standardized regression coefficients of the predictors, together with their t-value and coefficients of determination (R^2) are shown in Table 4.13.

Bank deposit received the strongest weight in the model followed by irrigation and lastly literacy rate. The variances were explained by their R^2 change. Bank deposit explained the variance in agricultural credit up to 95.1 percent. This could be explained by RBI policy mandate on schedule commercial bank and RRBs to advance 40 and 60 percent respectively of their net bank credit to priority sector, of which agriculture is given first preference. Hence, since the bank's net credit is dependent on their level of deposit mobilization, the level of agricultural advance is thus directly affected by the level of bank deposit. The irrigation accounted for 4.3 per cent variation in the flow of agricultural credit which also symbolized the district's involvement in irrigation project to foster crop growth and this could influence considerably any institution who wants to give credit / loan to be assured that the farmer is not basically dependent on rainfall for the success in production.

Gadag district

On the contrary, the flow of credit to agriculture in Gadag was primarily depending on entirely different variable. The prediction model contained two (2) out of the eight (8) predictors and was reached in two steps with no further variables removed. The model was statistically significant and accounted for approximately 96 percent of the variance in agricultural credit in the district ($R^2 = .960$, adjusted $R^2 = .948$). The flow of agricultural credit was basically predicted by the bank's branches, followed by the number of land holdings. The raw unstandardized and standardized coefficients of the predictors together with their t-value coefficients of determination (R^2) value are shown in Table 4.14.

Bank branches received the strongest weight in the model; the result might have been different if the number of the bank branches in the district was as high as the other two districts in discussion. The number of bank branches was next followed by the average size of land holdings. The unique variance was explained each by their R^2 change.

Bank branches explained variance in agricultural credit in the district up to 90.1 per cent whereas the average size of land holdings accounted for 5.9 percent of the variance in agricultural credit. The contribution of the bank branches to the flow of agricultural credit in the district could be attributed to increased efficiency of the banking service which accommodates higher number of population per branch every year than the previous year. This is in line with the measure of some banks taken during the post reform period where weaker bank branches were merged with stronger ones or closed off. This trend is, however, undesirable to the sustainable service of the rural credit system and if it is continued further, it would bring adverse effect on the long run.

Similar to bank branch expansion, the average size of land holdings contribution to agricultural credit could be attributed to the increase in the intensity of the input use per hectare of holding over the years. The higher the intensity of the input use per hectare in agricultural operation, the higher would be the flow of institutional finance to agriculture thereby indicating more and more credit inflow to agriculture in the district over the period selected.

5.2.4 Contribution of factors affecting flow of credit to non-agricultural sectors

The stepwise regression procedure adds only one variable at a time as the model is "slowly built". At the end of the last step, it is also possible to remove or exclude variable(s) from the model so that each steps result in a model and each successive step modify the older model and replace it with a newer one by testing each model for statistical significance in the prediction.

The selection of variables is also based on some *a priori* expectation so that these variables provide sufficient economic explanations. Employment and the number of SSIs are taken as proxy for economic growth and development while non-agricultural land was representing a potential for infrastructure and technology expansion in the spread of more non-agricultural activities. The rest factors like literacy, number of bank branches, bank deposit, and number of account openings are representations' of same as above under agricultural sector.

Belgaum district

The prediction model contained one (1) of the seven (7) predictors and was reached in one step with no other variables added. The model, which was statistically significant accounted for

approximately 95 percent of the variance in the flow of credit to non-agricultural sector ($R^2 = .945$, Adjusted $R^2 = .938$). Therefore, non-agricultural in Belgaum district was primarily predicted by bank deposit. The raw and standardized regression coefficients of the predictors together with their coefficients of determination are shown in Table 4.15. The unique variance was explained by R^2 in non-agricultural credit in which bank deposit uniquely accounted for 94.5 percent of the variance in non-agricultural credit of Belgaum district. This could be attributed to RBI's policy on mandatory advances of banks net credit also to the weaker sections of the society as had been discussed in the previous section under agricultural credit. Hence, the more deposit mobilization, the more the inflow of credit to non-agricultural sectors in the district.

Dharwad district

Contrary to the situation in Belgaum district, the prediction model for Dharwad district analysis of factors influencing flow of non-agricultural credit contained two (2) of the seven (7) predictors and was reached in two step with no other variables added or excluded. The model was statistically significant and accounted for approximately 98 percent of the variance in the flow of credit to non-agricultural sector ($R^2 = .981$ Adjusted $R^2 = .976$). Non- agricultural credit Dharwad district was primarily predicted by number of units of SSIs and to a lesser extent by higher number of bank branches. The raw and standardized regression coefficients of the predictors together with their t-value and coefficients of determinations are shown in Table 4.16. The variance in non-agricultural credit was explained by number of units of SSIs up to 96.5 percent while the bank branches accounted 1.6 percent of the variance in the same. This explanation could be linked with the two major occupation of Dharwad district showing to be the champion of one another i.e. besides agriculture, Dharwad district is a home of industries and they are vital sector for extracting the district from a jobless growth situation. The issue of bank branches had been discussed under the previous section.

Gadag district

The prediction for Gadag district under the causes of flow of non-agricultural credit in the district was however explained by bank branches. The prediction model which had only included a variable and excluded six (6) other predictors was reached in one step. The model was statistically significant and accounted for approximately 80 percent of the variance in the flow of credit to non-agricultural sector ($R^2 = .802$, adjusted $R^2 = .777$). The raw and standardized regression coefficients of the predictors, value and coefficient of determination are shown in Table 4.17. Bank branches uniquely accounted for 80.2 percent of the variation in non-agricultural credit of the district. This further revealed the weight and importance of bank branch expansion in the district. The bank branches expansion could be considered as a means to mobilize internal resources and channelling them in a socially productive investment. It is however worthy to note that, it is not the number of branches that are important but, the pattern of distribution of such branches.

The overall growth in the number of bank branches does not fully tell the story unless the progress is reflected over time in improving the average size of population served by a branch, especially in the rural areas. It is indeed to the credit of the banking institutions, more so, in the context of a sizeable growth in population during 2004-05 to 2013-14, that there has been an improvement in these dimensions of branch expansion. Therefore, the picture that emerged across the district during 2004 to 2014 does indeed suggest, at least on the face of it, considerable efforts had been made on the part of the banking institutions and government in out-reaching the people at large in the district of Gadag.

In conclusion, it would be quite misleading to assume that same factors are affecting flow of institutional credit in all the districts. Indeed, the flow of institutional credit was not supposed to be determined by different factors but, it is inevitably so due to differences in the characteristics of each district. Among possible explanations are the levels of infrastructure developments, operating government policy, literacy, deposit mobilization, age of the district etc. The study made by Khalid (2003) on access to formal and quasi-formal credit in Zanzibar stated clearly that the empirical evidence carried out indicated that age, gender, education, income levels and degree of awareness on credit availability were factors that influenced credit accessibility by smallholders and artisanal fishermen in Zanzibar.

However, there is need to highlight the key factor(s) that influences credit flow and in assessing this, it is useful and relevant to understand RBI policy on advancement of credit of certain percentages of bank's net credit to priority sector e.g. 40 per cent of net bank's credit of scheduled Commercial bank (SCB) was mandated by RBI to go to priority sectors.

5.3 Recovery performance of Institutional credit in agricultural and non-agricultural sector

Recovery in the priority sector has not been very encouraging Karthak (2014). Recovery performance of advances plays an important role in the enhancement of credit service to any sector. Most especially, recovery performance in the agriculture sector has been and continued to be a bottle neck in the credit-system. Therefore, repayment of loan together with interest by borrowers is crucial for recycling of funds deployed in rural credit. The fuelling of development process by dispensing credit is meaningful only when timely repayment is forthcoming. Otherwise, expansion of credit delivery is seriously impaired and the delivery system gets choked limiting the continued supply of credit by financial institutions especially in the rural areas. Good recovery is an important ingredient for profitability of any financial institutions as it leads to increased financial capacity to credit delivery.

5.3.2 The district wise contribution to the total outstanding of credit

The result of the discriminate analysis was used to discriminate between the two defined groups by helping to determine the percentage contribution of each sector i.e. agricultural and non-agricultural to the total outstanding of both sectors that existed in each of the districts.

It was clearly observed in Table 4.18 that the agricultural sector in Belgaum district was contributing approximately 67 percent to the total credit outstanding that was found in the district over the period of years whereas, non-agricultural sector in the district had a share of 33 percent of the same. This implied that agricultural sector had a little more than twice as much as non-agricultural sector of the total credit outstanding in the district. This can be linked with a study made on defaults and policy options in institutional credit to Indian Agriculture by Ashok and Seema (2002), which showed a declining trend in agricultural loan recovery. Also, stated in the study that defaults in Indian agriculture have risen over time and there exist tremendous fluctuations in their behaviour across all the rural financial institutions.

The results revealed in Table 4.19 showed that Dharwad district had a seemingly similar experience of which the agricultural sector had an approximate share of 64 percent of the total credit outstanding where as the non-agricultural sector was contributing approximately 36 percent of the total credit outstanding in the district. This made the agricultural sector to be having almost twice as much of the total credit outstanding in both sectors of the district as compared with non-agricultural sector.

The result of analysis for Gadag district as shown in Table 4.20 further revealed the situation of poor loan recovery in agricultural sectors over non-agricultural sectors. The percentage of contribution to the total credit outstanding in agricultural sectors was approximately 63 percent whereas the non-agricultural sector had an approximate share of 37 percent of the same.

On the overall, there are more outstanding found in agricultural sectors than over what was found in non-agricultural sector. Thus, indicating that there is poor recovery performance in agricultural sector than in non-agricultural sector. This could be attributed to the quantum of credit advance that goes into agricultural sector was more in comparison with non-agricultural sector. Hence, it could still be inferred that both sectors have a reasonable amount of outstanding but one is preferred to the other according to banking institutions. While there is more assurance of recovering non-agricultural credit, there is fear in recovering agricultural credit due to occasional government interference to waive some of the debt in agricultural sectors.

5.4 The constraints in the flow and recovery of credit

The constraints that usually accompany the flow and recovery of credit were elicited in previous sections obtained by personal interview with the top officials of the banks in each of the districts. The result could not be differentiated into each district because of the similarity in the constraints faced by them. Moreover, the number of interviewed respondents was too small and unequal for any kind of district wise groupings. However, the results had been classified into constraints in the flow and constraints in the recovery of credit. The percentages were calculated based on the frequency of times they are mentioned by each of the respondents as discussed under the previous sections.

5.4.1 Constraints in the flow of credit

The constraints under this section were the constraints that hinder the flow of credit as shown in Table 4.21.

The problem such as

- Timeliness of credit supply was an important consideration from the borrowers' side. Experience has shown, deregulation of interest rate would in most cases run against the borrower in terms of cost and to worsen it was the issue of credit subsidy which was adversely affecting the supply of agricultural credit. As Sahu and Rajasekhar (2005) indicated that reduction in lending cost is a suggestion as a measure to reduce the burden of credit subsidy.
- Inadequate information on the background of the borrowers. In the repayment of loans most especially in the rural areas, borrowers tend to withhold repayments and wait for some type of loan waiver programme to come up to their rescue. Interference of local politicians is adversely affecting repayment schedule of the borrowers in rural areas. The government populist policy of waiving of loans has created mass psychology
- The problems related to unnecessary government interference in the credit system especially announcement of debt relief, which develop wrong perception among borrowers on obligation of loan repayment; rather low cooperation by governments bodies and unsatisfactory legal support on recovery of loans especially for wilful defaulters, remain unsolved and they are still major problems of the agricultural credit system.
- Profitability and viability of credit institutions. Banks, today, see agriculture as inconvenient necessity. Rather than lending directly to farmers, they lend up to the entities connected with agriculture. Like non-banking finance companies that lend to farmers and warehousing or companies that make farm inputs.
- Effectiveness on the identification of borrowers and assessment of borrower's potential by credit institutions. This is discussed as above under inadequate information on the background of the borrowers.

5.4.2 Constraints in the recovery of credit

The constraints under this section were the constraints that hinder the recovery of credit as shown in Table 4.22.

- Supervision and follow-up of borrowers by lending institutions was another constraint as there is lack of sufficient staffs to ensure follow-up supervision after the sanction of loan and a kind of heavy burden on the existing field staff since they have to cover large number of villages under loan recovery programme. Moreover, staff are not willing to go to the rural and tribal areas may be due to lack of educational and medical facilities and even the staff who are working in these areas do not have any motivation to serve the area.
- Mis use of loan amount by borrowers usually leads them to be defaulters. This is supported by the study made by Sukhpal (2009) on cooperative banks. He wrote and I quote "the purpose for which a loan is taken or spent is an important indication of its potential to be repaid whether productive loan which includes purchase of current agricultural inputs (seed, diesel/oil, and agrochemicals). Whereas, unproductive purpose includes expenditure on house construction, farm building and repairs, social festivity, domestic expenditure, health care, payments of debts, sending family members abroad etc."
- Assistance to borrowers by granting extension of time for repayment in cases of genuine problems leads to abuse of grace time.
- Lack of statutory power by the banks. Absence of any statutory powers to the banks to induce prompt payment by borrowers is another hurdle which is hampering the recovery performance of the institutions. Statutes like the "Revenue Recovery Act" which empowered cooperatives to recover the loans would have gone a long way in improving the recovery performance of banks.

- Diversion of income generated out of investments by borrowers. This constraint is supported by the study reported by Rakesh (2004) which stated heavy dependence on borrowed funds by major agricultural purveyors have major implications for agricultural developments and also on the well-being of farming community.
- Unnecessary Government interference in banking operations is a major constraint that hinders both the flow and the recovery of credit.

The above mentioned problems, however, need clear attention and are to be improved upon for the effectiveness of the farm credit service. Although, the information assessed is only one-sided. The other side of the coin is not actually assessed i.e. the borrowers side. Thus, a balanced and comprehensive judgment would have been reached if the borrower side had also been assessed.

SUMMARY AND POLICY IMPLICATIONS

Credit has been conceived to play an important role in the development of any programme. A large number of institutional agencies are involved in the disbursement of credit to agricultural and non-agricultural sectors. However, the growing inequalities in access to credit between these two areas have been attributed to a large extent, to the unequal distribution of capital investment between them. For this reason, RBI has been instrumental in devising a multistage approach / financial system for credit dispensation to different sectors of the economy which covers both agricultural and non-agricultural sectors within the priority sectors lending.

Realizing the importance of agricultural credit in fostering agricultural growth and development, the emphasis on the institutional framework for agricultural credit is being emphasized since the beginning of planned development era in India. A large number of formal institutional agencies like schedule commercial banks, cooperatives, Regional Rural Banks (RRBs), non-banking financial institutions, self-help groups etc. are involved to increase agricultural productivity through credit finance. Also, several initiatives have been taken to strengthen the institutional mechanism of rural credit system. The main objective of these initiatives was improving farmer's access to institutional credit. The major milestone in improving the rural credit are acceptance of Rural Credit Survey Committee Report (1954), Nationalization of major commercial banks (1969 to 1980), establishment of RRBs (1975), establishment of National Bank for Agriculture and Rural Development (NABARD) (1982) and the financial sector reforms (1991 onwards), special Agricultural Credit Plan (1994-95), launching of Kisan Credit Cards (1998-1999). Doubling of agricultural credit plan within three years (2004), and Debt Waiver & Debt Relief Scheme (2008). These initiatives were believed to have a positive impact on the flow of agricultural credit. However, the inadequacy of credit to agriculture is often a hotly debated topic.

In India too, on the other hand, the non-agricultural sector especially the SSIs have played a crucial role in creating jobs and expanding the penetration of market based economic activities. Transformation of occupational structure has been possible due to the spread of this sector to large extent. However, with changing times, the contribution of this segment has been questioned on grounds of the returns from these enterprises. It is often alleged that the SSIs have acted as a sink where people having no alternative opportunities are deposited. Consequently, productivity levels are low Shah (2002). Thus, though their role in employment generation and reduction of poverty is widely acknowledged, it is often argued that their contribution to national income is not substantial. In order to facilitate the growth of SSIs, the government have also created elaborate institutional framework of which the major milestone in SSIs include State Financial Corporation (SFC) (1951) KFSC in case of Karnataka, liberalized Scheme by SBI (1956), National Small Industries Corporation (NSIC) (1966), Small Scale Industries Development Corporation (SSIDS) (1956), KSSIDC in case of Karnataka, Schedule Commercial Banks (SCB) mandate by RBI (1985), Small Industries Development Bank of India (1990), Reserve Bank of India (RBI) – Apex body controlling, monitoring and regulating the flow of finance to this sector. It is thereby suggested that unless productivity level in the SSIs can be raised considerably, the objectives behind encouraging this sector would remain unfulfilled.

From these perspectives highlighted above, it is imperative to assess the status of flow of credit to both agriculture and non-agriculture (SSIs) sector, particularly at state-district level where similar studies are limited. For this reason, this study was conducted to assess the comparative flow of institutional credit to agricultural and non-agricultural sector with the following specific objectives.

1. To analyse source-wise and purpose-wise flow of institutional credit to agriculture and non-agricultural sector.
2. To identify factors influencing flow of credit to agriculture and non-agricultural sector
3. To assess the extent of recovery of credit in agriculture and non-agricultural sector and
4. To elicit the constraints in the flow and recovery of institutional credit to both sectors.

Special features of the study

- To have a common ground for assessment, the flow of institutional credit to both sectors under study was considered under the total priority sector (TPS) lending. The three main credit institutions considered were schedule commercial banks (SCB), Rural Regional Banks (RRBs) and cooperative banks.
- The purpose of which credit were given under each of the sectors were enumerated.

- The determinant factors that influenced the flow of institutional credit were analysed for each sectors under the various district selected.
- The extent of recovery by judging from the outstanding together with constraints in the flow and recovery of institutional credit were assessed.

Methodology

The data used for analysis were mainly from secondary sources. Primary data on constraints in the flow and recovery of institutional credit were collected from the three lead banks for each district visited using personal interview approach from the top officials of the banks. The secondary data were time series data relating to credit flow to different agricultural and non-agricultural activities in the district were mainly collected from each of the district lead bank offices. Moreover, other relevant data were collected from the website of Agricultural Statistic at a glance, Karnataka statistics a glance, National Directorate of Economics and Statistics and Annual Reports of Reserve Bank of India (RBI).

Analytical tools employed

Compound growth rates and instability index were employed to study the source wise credit flow, while compound growth rates and percentages were used to assess the purpose-wise flow of credit. Correlations and step wise regression analysis were employed to analyse the relationship and determine the factors influencing credit flow. Lastly, discriminant analysis was used to study the contribution of outstanding in each sector calculating the percentages to assess the extent of recovery of credit flow in each sector.

Findings of the study

The growth rates of commercial banks across the districts were significantly high and satisfactory except for Gadag district where the growth rate of RRBs appeared to be obviously higher than that of the commercial Bank or the cooperatives. The cooperatives on the other hand had the lowest growth rates across all the districts under study. The instability index further confirmed a higher instability in cooperatives across the district indicating the vulnerability of this institution among others considered. Whereas, commercial banks was most stable, followed by RRBs.

The credit advance to TPS across the districts showed significant compound growth rate over the study period. The purpose wise growth rate in agriculture sector across the district likewise revealed the same except for land development in Belgaum district which rather showed an insignificant growth rate indicating that there is not much land development project going on in Belgaum district which could be as a result of land exhaustion due to increased agricultural farming in the district.

On the contrary, the compound growth rate purpose wise flow of credit to the non-agricultural sector did not show significant growth rates across the sectors except for Belgaum where there was high positive significant growth under non-agricultural sector. The case of Dharwad has shown that the growth rate in tiny sector was not significant whereas, the growth rate in Gadag revealed that tiny sector, village industries and SSIs were not significant indicating a low performance of activities in these sector of the districts concerned.

With respect to percentages of each sector, contrary to the held view, the flow of institutional credit was more to the agricultural sectors across the district selected with crop loan, which was that the largest share, has showed a higher percentage of credit flow that was nearly 50 percent and above to the TPS and well above 70 percent to the total agricultural credit across all the districts. Whereas, the non-agricultural sector was just having less than 10 percent to the TPS across the districts and SSIs along having above 60 percent share of credit flow in non-agricultural sector. Except for Gadag where the percentage share of SSIs varied about 50 percent and below due to relatively minor activities in this sector of the district.

Analysis of the factors influencing the flow of institutional credit to agriculture using correlation showed that irrigation, bank branches, bank deposit, literacy and number of accounts have a significant relationship with agricultural credit flow in Belgaum district, while in Dharwad district, the factors that had relationship with the flow of credit to agriculture includes irrigation, deposit literacy and number of accounts. Gadag district had in addition to the above factors, the number of land holdings as factors that had relationship with the flow of credit to agriculture. Thus, indicating that each of the variables is important significant variables to determine the flow of institutional credit to agriculture.

However, the result of the stepwise regressions was able to actually predict which factor(s) influenced the flow of credit to agriculture in the respective districts. Irrigation and bank deposit was the predictor for Belgaum, bank deposit, irrigation and literacy was for Dharwad whereas, Gadag district had bank branches and number of land holdings as the predictors of the model. Thus, indicating the factors influencing the flow of institutional credit to agriculture, of which the above factors were of prime importance and actually determined the flow of credit to agriculture in the respective districts.

In non-agricultural sector the result of correlation had shown a relationship between all the variables selected with the flow of non-agricultural sector in Belgaum district. Such as units of SSIs, land under non-agricultural use, literacy bank branches, bank deposit and employment. Dharwad result showed a similar result with the exception of land under non-agricultural use whereas Gadag district has also shown same result with the exception to land under non-agricultural use and a positive weak relationship with number of units of SSIs and Literacy. This was indicating all variables that are correlated have the potential to influence the flow of non-agricultural sector in the district.

Nonetheless, the result of the regression actually determined and helped to predict the prime factors that were influencing the flow of credit to non-agricultural sector in the respective district. The result of Belgaum district has shown the amount of bank deposit as the predictor of the credit flow whereas Dharwad district has shown the number of units of SSIs and bank branches as the predictors of the credit flow. Gadag district had only bank branches as the predictor of the flow of credit to non-agricultural sector.

The extent of recovery could not be determined based on the limitation of the variables in the data collected containing lagged variable but, the percentage of the contribution of each of the sectors to the total outstanding of both sectors were determined using discriminant analysis. The result revealed that all the districts were having more than 60 percent contribution of the outstanding existing in the agricultural sector across the entire districts with Belgaum having 67 percent, Dharwad had 64 percent and Gadag had 63 percent. On the other hand, the non-agricultural sector was having lesser percentage share of the contribution to the total outstanding in both sectors which were 33 percent, 36 percent and 37 percent in Belgaum, Dharwad and Gadag districts respectively. This, indicating that there are more outstanding found in the agricultural sector than over what was found in non-agricultural sector. This could be attributed to the quantum of loan advance that goes into agricultural sector was more compared with the non-agricultural sector hence it could still be inferred that both sectors have a reasonable amount of outstanding but one is preferred to the other according to banking institutions. While, there is more assurance of recovering non-agricultural credit, there is fear in recovery of agricultural credit due to occasional government interference to waive some of the debt in agricultural sectors.

The qualitative aspect however was the elicitation of constraints in the flow of credit which was assessed by personal interview with the top bank officials in the various lead bank district officers. The responses were classified by the constraints in the flow and the constraints in the recovery of credit. Among all under listed constraints, timeliness of credit supply was the only important consideration from the borrower's side. A balanced and comprehensive judgment would have been reached if the borrowers' side had also been assessed.

These conclusions were reached by studying the comparative flow of institutional credit to agricultural and non-agricultural sector on the basis of secondary data for a period of time during 2004-05 to 2013-14 and supplementary information through personal interview and websites of related organizations. In this regard, a comprehensive study can further be made by considering both sectors on the part of lenders and borrowers side of flow of institutional credit in the districts.

Policy Implications

1. The growth in disbursement of credit by commercial banks and RRBs together with their Instability index was quite impressive across the districts whereas, cooperative banks growth and the instability index had shown unstable trends in their operational activities. Therefore, it is recommended that cooperatives banks needs to make efforts to boost up its activities improving the performance of the credit delivery system in securing adequate stable financial assistance to the total priority sector lending.

2. It was evident that institutional credit flow to agricultural sector was much higher in the districts selected than the flow to non-agricultural sector which nullifies the hypothesis. Deregulation of interest rates may have increased the cost of borrowings for non-agricultural sector and tiny sector units are the hard hit section as a result of new economic policy. Hence, it is very much necessary to have a comprehensive policy supported by proper and adequate availability of credit to that sector (non-agricultural).

3. The flow of agricultural credit in the districts was found to be significantly influenced by various different factors. Since the RBI policy of priority sector lending is related to the level of net bank advances and in turn to the level of bank deposit of banks, the policy of RBI should play the primary role in determining the flow of Institutional credit to both agricultural and non-agricultural sectors. Therefore, to channel sufficient financial resources to the sector effectively, strengthening the ground level planning activities and monitoring of banks to fulfill the RBI priority sector lending policy are crucially essential.

4. Outstanding could be minimized if the credit is provided to borrowers, who satisfy the technical feasibility and financial viability. Similarly, the measures for improvement of crop yield, remunerative price to crop produce, crop increase, concessional rate of interest to SSIs etc. are also necessary to enhance the repayment capacity of particularly small farmers.

5. The unnecessary government interference hinders both the flow and recovery of credit. Therefore, instead of debt waiver and debt relief scheme, government should think of providing incentives in terms of interest subsidy to regular payers, and reduction of interest on credit obtained, especially in agricultural sector.

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Appendix 1: Distribution of credit flow to total priority sector (TPS) in Belgaum Districts

Year	Agriculture	NFS	OPS	Allied	Rs. In Lakhs
					TPS
2004-05	60.44 (67.45)	4.80 (5.36)	22.30 (24.88)	2.07 (2.31)	89.61 (100)
2005-06	71.23 (63.45)	6.38 (5.68)	31.06 (27.67)	3.58 (3.19)	112.26 (100)
2006-07	109.11 (69.86)	7.90 (5.06)	35.64 (22.83)	3.44 (2.20)	156.09 (100)
2007-08	108.65 (65.09)	13.37 (8.01)	41.13 (24.64)	3.79 (2.27)	166.94 (100)
2008-09	132.95 (67.49)	11.74 (5.96)	48.07 (24.41)	4.21 (2.14)	196.97 (100)
2009-10	149.15 (66.89)	14.68 (6.58)	54.84 (24.60)	4.30 (1.93)	222.97 (100)
2010-11	198.75 (71.09)	17.42 (6.23)	57.84 (20.69)	5.56 (1.99)	279.58 (100)
2011-12	200.49 (70.99)	15.87 (5.62)	61.78 (21.88)	4.29 (1.52)	282.43 (100)
2012-13	207.19 (70.54)	16.42 (5.59)	65.73 (22.38)	4.37 (1.49)	293.72 (100)
2013-14	253.11 (57.82)	25.85 (5.91)	140.93 (32.19)	17.86 (4.08)	437.75 (100)
CGR	17.65	17.26	16.89	15.01	16.81

Note: Figures in the parentheses indicates percentage to TPS for each purpose in each year.

(**- 1% level and *-5% level)

Appendix 2: Distribution of credit flow to total priority sector (TPS) in Dharwad Districts

Rs. In lakhs					
Year	Agriculture	Allied	NFS	OPS	TPS
2004-05	11.90 (31.48)	0.87 (2.30)	4.98 (13.19)	20.04 (53.03)	37.79 (100)
2005-06	17.19 (29.96)	1.41 (2.45)	5.70 (9.93)	33.08 (57.66)	57.38 (100)
2006-07	24.02 (36.70)	0.69 (1.05)	6.97 (10.65)	33.76 (51.60)	65.44 (100)
2007-08	28.78 (38.35)	1.36 (1.81)	8.19 (10.92)	36.71 (48.92)	75.04 (100)
2008-09	34.40 (38.08)	2.07 (2.29)	10.64 (11.78)	43.23 (47.85)	90.34 (100)
2009-10	44.08 (39.93)	2.41 (2.18)	13.58 (12.30)	50.34 (45.60)	110.40 (100)
2010-11	62.57 (44.39)	5.05 (3.58)	14.37 (10.20)	58.96 (41.83)	140.95 (100)
2011-12	73.50 (46.97)	6.15 (3.93)	14.86 (9.49)	61.98 (39.61)	156.50 (100)
2012-13	83.04 (45.11)	5.89 (3.20)	21.72 (11.80)	73.44 (39.89)	184.09 (100)
2013-14	97.06 (46.57)	8.52 (4.09)	21.90 (10.51)	80.94 (38.83)	208.42 (100)
CGR	25.96**	33.52**	18.78**	14.78	19.92*

Note: Figures in the parentheses indicate percentage to the total credit disbursed by the district in each year

(**- 1% level and *-5% level)

Appendix 3: Distribution of credit flow to total priority sector (TPS) in Gadag Districts

Rs. In lakhs

Year	Agriculture	Allied	NFS	OPS	TPS
2004-05	13.49 (62.00)	1.61 (7.41)	1.86 (8.55)	4.80 (22.04)	21.76 (100)
2005-06	17.72 (68.24)	1.88 (7.24)	1.12 (4.32)	5.25 (20.20)	25.97 (100)
2006-07	20.04 (67.36)	1.76 (5.91)	1.53 (5.16)	6.42 (21.58)	29.74 (100)
2007-08	19.37 (64.25)	2.06 (6.85)	1.69 (5.61)	7.03 (23.30)	30.16 (100)
2008-09	22.08 (68.20)	2.28 (7.05)	1.73 (5.34)	6.28 (19.41)	32.38 (100)
2009-10	28.36 (66.71)	2.75 (6.46)	1.84 (4.34)	9.57 (22.50)	42.52 (100)
2010-11	37.55 (68.79)	3.96 (7.26)	1.92 (3.52)	11.15 (20.43)	54.59 (100)
2011-12	48.51 (71.44)	4.39 (6.47)	2.17 (3.19)	12.83 (18.90)	67.90 (100)
2012-13	75.78 (80.08)	4.90 (5.18)	1.54 (1.63)	12.41 (13.11)	94.63 (100)
2013-14	80.37 (70.86)	5.41 (4.77)	3.58 (3.15)	24.07 (21.22)	113.43 (100)
CGR	22.70**	15.88**	8.37**	16.94**	20.56**

Note: Figures in the parentheses indicate percentage to the total credit disbursed by the district in each year.

(**- 1% level and *-5% level)

Appendix 4: Distribution of Agricultural credit in Belgaum Districts

Rs. In lakhs

Year	Crop loan	Micro Irrigation	Land Development	Farm Mechanization	Plantation Horticulture	Other agri	Agriculture
2004-05	48.17 (79.69) [53.75]	4.61 (7.62) [5.14]	0.56 (0.93) [0.63]	4.84 (8.02) [5.41]	1.26 (2.08) [1.40]	1.00 (1.66) [1.12]	60.44 (100)
2005-06	56.10 (78.76) [49.98]	5.23 (7.34) [4.66]	1.58 (2.22) [1.41]	5.28 (7.41) [4.70]	2.27 (3.19) [2.02]	0.77 (1.08) [0.69]	71.23 (100)
2006-07	60.64 (74.80) [51.66]	7.80 (9.62) [5.00]	1.82 (2.24) [1.17]	7.87 (9.70) [5.04]	2.17 (2.68) [1.39]	0.77 (0.96) [0.50]	109.11 (100)
2007-08	78.81 (72.53) [47.21]	10.66 (9.81) [6.38]	3.49 (3.21) [2.09]	9.96 (9.17) [5.97]	2.37 (2.18) [1.42]	3.37 (3.11) [2.02]	108.65 (100)
2008-09	97.99 (73.71) [49.75]	9.80 (7.37) [44.66]	4.49 (3.38) [2.28]	13.04 (9.81) [6.62]	3.13 (2.36) [1.59]	4.50 (3.38) [2.28]	132.95 (100)
2009-10	119.13 (79.87) [53.43]	8.20 (5.50) [3.68]	4.19 (2.81) [1.88]	12.58 (8.43) [5.64]	3.52 (2.36) [1.58]	1.53 (1.03) [0.69]	149.15 (100)
2010-11	165.92 (83.48) [59.35]	7.67 (3.86) [2.74]	3.34 (1.68) [1.19]	10.56 (5.31) [3.78]	3.02 (1.52) [1.08]	8.24 (4.14) [2.95]	198.75 (100)
2011-12	169.41 (84.50) [59.98]	7.38 (3.68) [2.61]	4.11 (2.05) [1.46]	12.84 (6.41) [4.55]	3.11 (1.55) [1.10]	3.63 (1.81) [1.29]	200.49 (100)
2012-13	171.47 (82.76) [58.38]	9.09 (4.39) [3.10]	0.49 (0.24) [0.17]	14.99 (7.23) [5.10]	3.49 (1.68) [1.19]	7.67 (3.70) [2.61]	207.19 (100)
2013-14	206.57 (81.61) [47.19]	17.11 (6.76) [3.91]	7.08 (2.80) [1.62]	15.90 (6.28) [3.63]	4.49 (1.77) [1.03]	1.96 (0.78) [0.45]	253.11 (100)
CGR	18.85**	9.02**	11.81	13.29**	10.92**	21.03*	17.65**

Note: Figures in the round parentheses indicate percentage to the total Agricultural credit under each purpose.

Figures in the square parentheses indicate percentage to the TPS of the district in each year.

(**- 1% level and *-5% level)

Appendix 5: Distribution of Agricultural credit in Dharwad Districts

Rs. In lakhs

Year	Crop loan	Micro irrigation	Land development	Farm mechanization	Plantation /Horticulture	Other agri	Agriculture
2004-05	8.91 (74.93) [23.59]	0.13 (1.06) [0.33]	0.08 (0.69) [0.22]	1.32 (11.09) [3.49]	0.10 (0.84) [0.27]	1.35 (11.39) [3.59]	11.90 (100)
2005-06	14.01 (81.52) [2.44]	0.34 (1.96) [0.06]	0.12 (0.71) [0.02]	2.36 (13.71) [0.41]	0.28 (1.60) [0.05]	0.08 (0.49) [0.15]	17.19 (100)
2006-07	17.47 (72.75) [26.70]	0.46 (1.90) [0.70]	0.36 (1.49) [0.55]	4.13 (17.21) [6.32]	0.36 (1.50) [0.55]	1.23 (5.16) [1.89]	24.02 (100)
2007-08	22.31 (77.52) [29.73]	0.61 (2.11) [0.81]	0.38 (1.31) [0.50]	4.47 (15.54) [5.96]	0.66 (2.30) [0.88]	0.35 (1.22) [0.47]	28.78 (100)
2008-09	26.30 (76.44) [29.11]	0.69 (1.99) [0.76]	0.62 (1.80) [0.69]	5.32 (15.45) [5.88]	0.91 (2.64) [1.01]	0.58 (1.68) [0.64]	34.40 (100)
2009-10	34.65 (78.62) [31.39]	0.65 (1.48) [0.59]	1.03 (2.34) [0.93]	0.65 (14.75) [5.89]	0.62 (1.40) [0.56]	0.62 (1.42) [0.57]	44.08 (100)
2010-11	48.29 (77.17) [34.26]	1.13 (1.81) [0.80]	1.50 (2.40) [1.07]	9.67 (15.45) [6.86]	0.90 (1.43) [0.64]	1.08 (1.73) [0.77]	62.57 (100)
2011-12	59.96 (81.58) [38.32]	0.72 (0.97) [0.46]	1.55 (2.11) [0.99]	8.79 (11.95) [5.61]	0.85 (1.16) [0.54]	1.63 (2.22) [1.04]	73.50 (100)
2012-13	65.43 (78.80) [35.54]	1.25 (1.50) [0.68]	1.91 (2.30) [1.04]	6.50 (7.83) [3.53]	1.12 (1.34) [0.61]	6.83 (8.23) [3.71]	83.04 (100)
2013-14	79.92 (82.34) [38.35]	1.77 (1.83) [0.85]	2.03 (2.09) [0.97]	8.17 (8.42) [3.92]	1.65 (1.70) [0.79]	3.52 (3.62) [1.69]	97.06 (100)
CGR	26.88 **	25.18 **	43.95 **	19.78 **	27.29 **	30.68 *	25.96 **

Note: Figures in the round parentheses indicate percentage to the total agricultural credit under each purpose.

Figures in the square parentheses indicate percentage to the TPS by the district in each year.

(** - 1% level and * - 5% level)

Appendix 6: Distribution of agricultural credit in Gadag Districts

Rs. In lakhs

Year	Crop loan	Micro irrigation	Land development	Farm mechanization	Plantation/ Horticulture	Other agri	Agriculture
2004-05	9.22 (68.35) [42.38]	0.20 (1.47) [0.91]	0.22 (1.65) [1.03]	2.72 (20.15) [12.49]	0.34 (2.53) [1.57]	0.79 (5.85) [3.63]	13.49 (100)
2005-06	14.35 (80.97) [55.25]	0.27 (1.54) [1.05]	0.18 (1.01) [0.69]	2.03 (11.43) [7.80]	0.67 (3.78) [2.58]	0.23 (1.28) [0.87]	17.72 (100)
2006-07	15.75 (78.59) [52.94]	0.57 (2.86) [1.93]	0.21 (1.05) [0.71]	2.74 (13.70) [9.23]	0.72 (3.57) [2.40]	0.05 (0.23) [0.15]	20.04 (100)
2007-08	16.01 (82.64) [53.10]	0.26 (1.32) [0.85]	0.20 (1.03) [0.66]	2.19 (11.30) [7.26]	0.20 (1.03) [0.66]	0.52 (2.68) [1.72]	19.37 (100)
2008-09	16.86 (76.35) [52.07]	0.46 (2.07) [1.41]	0.20 (0.91) [0.62]	2.44 (11.05) [7.54]	0.27 (1.23) [0.84]	1.85 (8.40) [5.73]	22.08 (100)
2009-10	19.89 (70.12) [46.77]	0.52 (1.85) [1.23]	0.30 (1.06) [0.71]	2.92 (10.31) [6.87]	1.03 (3.64) [2.43]	3.70 (13.03) [8.70]	28.36 (100)
2010-11	26.54 (70.68) [48.62]	0.46 (1.21) [0.84]	0.50 (1.32) [0.91]	3.40 (9.05) [6.23]	1.13 (3.00) [2.06]	5.53 (14.74) [10.14]	37.55 (100)
2011-12	35.92 (74.05) [52.90]	2.15 (4.42) [3.16]	0.57 (1.17) [0.84]	5.00 (10.30) [7.36]	1.44 (2.97) [2.12]	3.44 (7.10) [5.07]	48.51 (100)
2012-13	55.92 (73.79) [53.03]	1.96 (2.58) [1.86]	0.69 (0.91) [0.66]	5.19 (6.85) [4.92]	1.33 (1.76) [1.27]	10.69 (14.11) [10.13]	75.78 (100)
2013-14	65.94 (82.05) [58.14]	2.83 (3.52) [2.50]	1.32 (1.64) [1.16]	5.22 (6.50) [4.60]	2.31 (2.87) [2.03]	2.74 (3.42) [2.42]	80.37 (100)
CGR	22.17*	32.31*	22.55**	10.83**	21.44**	50.62*	22.70**

Note: Figures in the round parentheses indicate percentage to the total agricultural credit under each purpose.

Figures in the square parentheses indicate percentage to the TPS disbursed by the district in each year. (**- 1% level and *-5% level)

Appendix 7: Distribution of non-Agricultural credit in Belgaum District

Rs. In lakhs

Year	Handloom	Tiny sector	Village industries	Rural artisans	SSIs	NF miscellaneous	NFS
2004-05	0.23 (4.69) [0.25]	0.12 (2.43) [0.13]	0.15 (3.20) [0.17]	0.37 (7.71) [0.41]	3.26 (67.99) [3.64]	0.67 (13.98) [0.75]	4.80 (100)
2005-06	0.33 (5.13) [0.29]	0.23 (3.61) [0.21]	0.18 (2.82) [0.16]	0.38 (5.93) [0.34]	3.71 (58.20) [3.31]	1.55 (24.31) [1.38]	6.38 (100)
2006-07	0.54 (6.88) [0.35]	0.46 (5.83) [0.30]	0.23 (2.88) [0.15]	0.42 (5.25) [0.27]	5.25 (66.41) [3.36]	1.01 (12.74) [0.65]	7.90 (100)
2007-08	0.28 (2.12) [0.17]	0.57 (4.27) [0.34]	0.40 (3.01) [0.24]	0.63 (4.69) [0.38]	9.06 (67.77) [5.43]	2.43 (18.14) [1.45]	13.37 (100)
2008-09	0.66 (5.64) [0.34]	0.56 (4.76) [0.28]	0.45 (3.81) [0.23]	0.54 (4.57) [0.27]	9.86 (83.96) [5.00]	1.00 (8.52) [0.51]	11.74 (100)
2009-10	0.56 (3.81) [0.25]	0.54 (3.70) [0.24]	0.42 (2.85) [0.19]	0.52 (3.52) [0.23]	8.78 (59.82) [3.94]	3.86 (26.29) [1.73]	14.68 (100)
2010-11	0.52 (2.98) [0.19]	0.54 (3.07) [0.19]	0.41 (2.35) [0.15]	0.72 (4.10) [0.26]	11.86 (68.05) [4.24]	3.39 (19.44) [1.21]	17.42 (100)
2011-12	0.47 (2.95) [0.17]	0.57 (3.57) [0.20]	0.45 (2.85) [0.16]	0.66 (4.15) [0.23]	10.27 (64.68) [3.64]	3.46 (21.79) [1.22]	15.87 (100)
2012-13	0.61 (3.70) [0.21]	0.62 (3.76) [0.21]	0.48 (2.90) [0.16]	0.89 (5.43) [0.30]	12.40 (75.52) [4.22]	1.43 (8.68) [0.49]	16.42 (100)
2013-14	0.67 (2.58) [0.15]	0.63 (2.43) [0.14]	0.57 (2.21) [0.13]	1.06 (4.09) [0.24]	19.12 (73.98) [4.37]	3.80 (14.71) [0.87]	25.85 (100)
CGR	9.53 [*]	17.65 ^{**}	17.26 ^{**}	16.87 ^{**}	15.0 [*]	15.34 [*]	17.26 ^{**}

Note: Figures in the round parentheses indicate percentage to total Non-Agricultural credit under each purpose.

Figures in the square parentheses indicate percentage to the TPS of the district in each year.

(**- 1% level and *-5% level)

Appendix 8: Distribution of non-agricultural credit in Dharwad Districts

Rs. In lakhs

Year	Tiny sector	Village industries	Rural artisans	SSIs	NF miscellaneous.	NFS
2004-05	0.20 (4.10) [0.54]	0.04 (0.90) [0.12]	0.05 (1.07) [0.14]	3.72 (74.75) [9.86]	0.96 (19.18) [2.53]	4.98 (100)
2005-06	0.23 (3.95) [0.39]	0.06 (1.02) [0.10]	0.11 (1.98) [0.20]	5.13 (89.98) [8.94]	0.17 (3.07) [0.30]	5.70 (100)
2006-07	0.20 (2.90) [0.31]	0.11 (1.61) [0.17]	0.07 (1.07) [0.11]	5.24 (75.22) [8.01]	1.34 (19.19) [2.04]	6.97 (100)
2007-08	0.31 (3.73) [0.41]	0.16 (1.91) [0.21]	0.07 (0.83) [0.09]	6.69 (81.61) [8.91]	0.98 (11.93) [1.30]	8.19 (100)
2008-09	0.58 (5.45) [0.49]	0.32 (3.01) [0.35]	0.02 (0.19) [0.18]	7.69 (72.27) [8.51]	2.03 (19.08) [2.24]	10.64 (100)
2009-10	0.50 (3.67) [0.45]	0.20 (1.45) [0.18]	0.38 (2.79) [0.34]	9.19 (67.67) [8.32]	3.32 (24.42) [3.00]	13.58 (100)
2010-11	0.33 (2.27) [0.23]	0.18 (1.26) [0.13]	0.31 (2.18) [0.22]	9.12 (63.44) [6.47]	4.43 (30.85) [3.14]	14.37 (100)
2011-12	0.14 (0.93) [0.09]	0.18 (1.20) [0.11]	0.85 (5.70) [0.54]	10.68 (71.86) [6.82]	3.02 (20.31) [1.93]	14.86 (100)
2012-13	0.68 (3.12) [0.37]	0.64 (2.97) [0.35]	0.41 (1.89) [0.22]	15.62 (71.93) [8.49]	4.36 (20.09) [2.37]	21.72 (100)
2013-14	1.09 (4.96) [0.52]	0.36 (1.65) [0.17]	0.31 (1.40) [0.15]	15.93 (72.75) [7.65]	4.22 (19.24) [2.02]	21.90 (100)
CGR	13.69	25.83*	29.26**	16.74**	31.33**	18.78**

Note: Figures in the round parentheses indicate percentage to total non-agricultural credit under each purpose.

Figures in the square parentheses indicate percentage to the TPS disbursed by the district in each year.

(**- 1% level and *-5% level)

Appendix 9: Distribution of non-agricultural credit in Gadag Districts

Rs. In lakhs

Year	Tiny sector	Village industries	Rural artisans	SSIs	NF miscellaneous	NFS
2004-05	0.09 (4.78) [0.41]	0.01 (0.55) [0.05]	0.08 (4.55) [0.39]	1.03 (55.30) [4.73]	0.65 (34.83) [2.98]	1.86 (100)
2005-06	0.01 (1.02) [0.04]	0.02 (1.78) [0.08]	0.10 (8.92) [0.39]	0.58 (52.08) [2.25]	0.41 (36.20) [1.56]	1.12 (100)
2006-07	0.04 (2.31) [0.12]	0.01 (0.79) [0.04]	0.10 (6.39) [0.33]	0.91 (59.17) [3.05]	0.48 (31.34) [1.62]	1.53 (100)
2007-08	0.05 (2.93) [0.16]	0.03 (1.49) [0.08]	0.09 (5.13) [0.29]	0.92 (54.36) [3.05]	0.61 (36.10) [2.02]	1.69 (100)
2008-09	0.04 (2.34) [0.12]	0.02 (1.12) [0.06]	0.10 (6.05) [0.32]	1.01 (58.38) [3.12]	0.56 (32.11) [1.72]	1.73 (100)
2009-10	0.04 (2.23) [0.10]	0.01 (0.71) [0.03]	0.15 (7.88) [0.34]	1.03 (56.01) [2.43]	0.61 (33.18) [1.44]	1.84 (100)
2010-11	0.05 (2.51) [0.09]	0.02 (0.94) [0.03]	0.12 (6.02) [0.21]	1.09 (56.85) [2.00]	0.65 (33.68) [1.18]	1.92 (100)
2011-12	0.06 (2.71) [0.09]	0.02 (0.70) [0.02]	0.15 (7.12) [0.23]	1.25 (57.63) [1.84]	0.69 (31.84) [1.02]	2.17 (100)
2012-13	0.05 (3.16) [0.04]	0.02 (1.08) [0.02]	0.13 (8.49) [0.12]	0.82 (54.75) [0.78]	0.69 (32.52) [0.51]	1.50 (100)
2013-14	0.10 (2.93) [0.09]	0.08 (2.17) [0.07]	0.25 (6.90) [0.22]	1.19 (33.35) [1.05]	1.96 (54.65) [1.72]	3.58 (100)
CGR	8.79	10.54	9.36**	3.61	8.39	8.38**

Note: Figures in the round parentheses indicate percentage to total non-agricultural credit under each purpose.

Figures in the square parentheses indicate percentage to the TPS disbursed by the district in each year.

(** - 1% level and * - 5% level)

A COMPARATIVE FLOW OF INSTITUTIONAL CREDIT TO AGRICULTURAL AND NON-AGRICULTURAL SECTORS IN NORTH KARNATAKA

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ABSTRACT

A study on comparative flow of institutional credit to agricultural and non-agricultural sectors in north Karnataka was carried out during 2004-05 to 2013-14 to analyze the source-wise and purpose-wise flow of institutional credit, factors influencing flow of credit, the extent of recovery of credit, and the constraints in the flow and recovery of institutional credit to both sectors. The data was purely based on the secondary data for the districts which has been collected from Annual Credit Plan of Lead District Banks for Belgaum, Dharwad and Gadag respectively. The data thus collected have been analyzed by using compound growth rate, percentages, correlation, regression analysis and discriminant analysis.

The results revealed that the cooperatives had the lowest growth rates across all the districts under study whereas commercial bank was most stable source followed by Rural Regional Banks (RRBs). The flow of institutional credit was more to the agricultural sector across the districts selected in which the crop loan had the largest share and was nearly 50 per cent and above to the TPS and well above 70 per cent to the total agricultural credit across all the districts. On the contrary, the flow of institutional credit to non-agricultural sector was less than 10 per cent to the TPS across the districts in which SSIs had 60 per cent share of the credit flow within non-agricultural sector except for Gadag which was about 50 per cent. The factors that influenced flow of credit in the respective districts varied. Irrigation and bank deposit were the predictors for Belgaum, bank deposit, irrigation and literacy were for Dharwad whereas, Gadag district had bank branches and number of land holdings as the predictors of the model for agricultural sector. Nonetheless, for the non-agricultural sector, the amount of bank deposit was the predictor of the credit flow in Belgaum district, whereas, number of units of SSIs and bank branches were for Dharwad district, Gadag district had only bank branches as the predictor of the flow of credit to non-agricultural sector. The result also showed that, agricultural sector was having more than 60 per cent share of the outstanding over what was found in non-agricultural sector (about 30 per cent). Among all under listed constraints, timeliness of credit supply was the only consideration from the borrower's side. Furthermore, the study revealed that Reserve Bank of India (RBI) is a panacea to effective flow of credit to both sectors therefore, strengthening the ground level planning activities and monitoring of banks to fulfill the RBI priority sector lending policy are crucially essential.